

ICD 08241

# Amateur Radio

SERVING AMATEUR RADIO SINCE 1945

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# CQ

## SPECIAL ANTENNA ISSUE

Lew McCoy, W1ICP  
The Living Legend  
in his natural habitat.

THE RADIO AMATEUR'S JOURNAL





# KENWOOD

...pacesetter in Amateur Radio

All New!

## Stacked in Your Favor!

### TM-231A/431A/531A

#### FM Mobile Transceiver

Looking for a compact transceiver for your mobile VHF and UHF operations? KENWOOD has a compact rig for each of the most popular VHF/UHF bands.

- **20 multi-function memory channels.** 20 memory channels allow storage of frequency, repeater offset, CTCSS frequency, frequency step, Tone On/Off status, CTCSS and REV.
- **High performance—high power!** 50W (TM-231A), 35W (TM-431A) with a 3 position power switch (high, medium, low).
- **Optional full-function remote controller (RC-20).**

A full-function remote controller using the Kenwood bus line, model RC-20, may be easily connected to the TM-231A/431A/531A and can be mounted in any convenient location. Using the IF-20 interface the RC-20 may be connected to four mobile transceivers. (TM-231A/431A/531A or the TM-701A)

- **Multi-function microphone supplied.** Controls are provided on the microphone for CALL (call channel), VFO, MR (memory recall or change the memory channel) and a programmable key. The programmable key can be used to control one of the following functions on the radio: MHz, T.ALT, TONE, REV, DRS, LOW or MONITOR.
- **Easy-to-operate illuminated keys.** A functionally designed control panel with backlit keys increases the convenience and ease of operation during night-time use.
- **Auto repeater offset on 144 and 220 MHz.**
- **Built-in digital VFO.**
  - a) Selection of the frequency step (5, 10, 15, 20, 12.5, 25kHz)  
\*TM-531A: 10, 20, 12.5 25kHz
  - b) Programmable VFOThe user friendly programmable VFO allows the operator to select and program variable tuning ranges in 1 MHz band increments.

- **Programmable call channel function.** The call channel key allows instant recall of your most commonly used frequency data.
- **Selectable CTCSS tone built-in.**
- **Tone alert system—for true "quiet monitoring"!** When activated this function will cause a distinct beeper tone to be emitted from the transceiver for approximately 10 seconds to signal the presence of an incoming signal.
- **Easy-to-operate multi-mode scanning.** Band scan, Program band scan, Memory scan plus programmable memory channel lock-out, with time operated or carrier operated stop.
- **Priority alert.**
- **DRS (Digital recording system).** The optional DRU-1 can store received and transmitted messages for up to 32 seconds, allowing the operator to quickly check or return any call using the tone alert system.
- **Automatic lock tuning function (TM-531A).**
- **Repeater reverse switch.**



#### Optional Accessories

- **RC-20** Full-function remote controller
- **RC-10** Multi-function remote controller
- **IF-20** Interface unit handset
- **DRU-1** Digital recording unit
- **MC-44** Multi-function hand mic.
- **MC-44DM** Multi-function hand mic. with auto-patch
- **MC-48B** 16-key DTMF hand mic.
- **MC-55** 8-pin mobile mic.
- **MC-60A/80/85** Desk-top mics.
- **MA-700**

- Dual band (2m/70cm) mobile antenna (mount not supplied)
- **SP-41** Compact mobile speaker
- **SP-50B** Mobile speaker
- **PS-430** Power supply
- **PS-50** Heavy-duty power supply
- **MB-201** Mobile mount
- **PG-2N** Power cable
- **PG-3B** DC line noise filter
- **PG-4H** Interface connecting cable
- **PG-4J** Extension cable kit
- **TSU-6** CTCSS unit

Specifications and prices subject to change without notice or obligation.  
Complete service manuals are available for all Kenwood transceivers and most accessories.

## KENWOOD

KENWOOD U.S.A. CORPORATION  
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Mississauga, Ontario, Canada L4T 4C2



# KENWOOD

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DX-cellence!

## #1 Rated HF!



### TS-940S Competition class HF transceiver

TS-940S—the standard of performance by which all other transceivers are judged. Pushing the state-of-the-art in HF transceiver design and construction, no one has been able to match the TS-940S in performance, value and reliability. The product reviews glow with superlatives, and the field-proven performance shows that the TS-940S is "The Number One Rated HF Transceiver!"

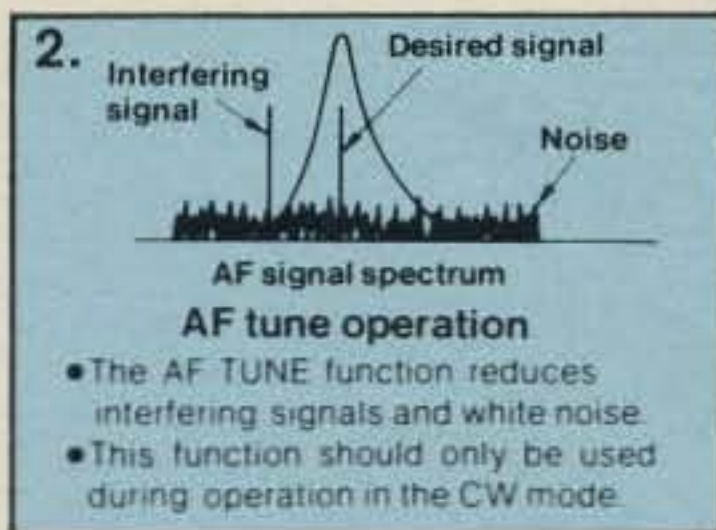
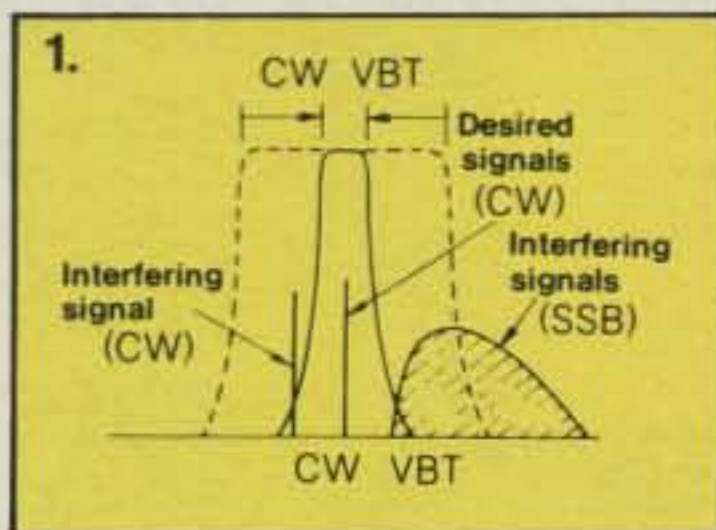
- **100% duty cycle transmitter.** Kenwood specifies transmit duty cycle **time**. The TS-940S is guaranteed to operate at full power output for periods **exceeding one hour**. (14.250 MHz, CW, 110 watts.) Perfect for RTTY, SSTV, and other long-duration modes.
- **First with a full one-year limited warranty.**
- **Extremely stable phase locked loop (PLL) VFO.** Reference frequency accuracy is measured in **parts per million!**

#### Optional accessories:

- AT-940 full range (160-10m) automatic antenna tuner
- SP-940 external speaker with audio filtering
- YG-455C-1 (500 Hz), YG-455CN-1 (250 Hz), YK-88C-1 (500 Hz) CW filters; YK-88A-1 (6 kHz) AM filter
- VS-1 voice synthesizer
- SO-1 temperature compensated

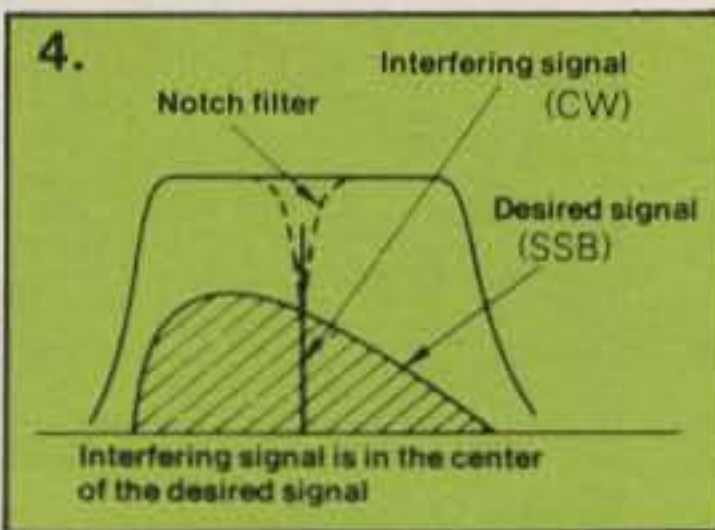
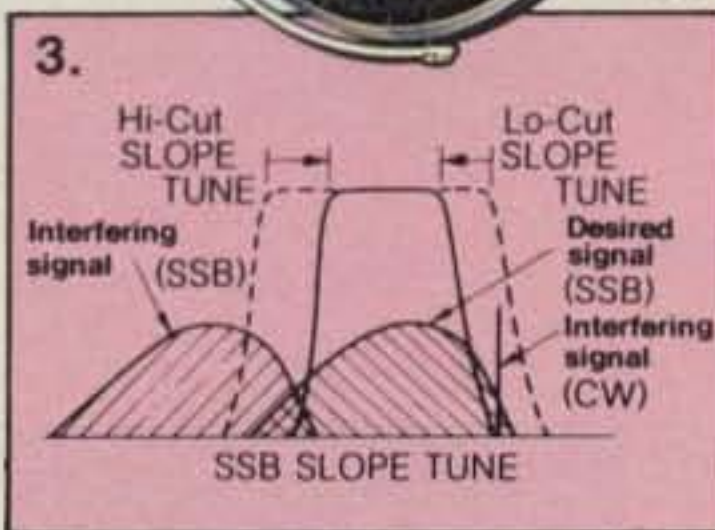
- crystal oscillator
- MC-43S UP/DOWN hand mic.
- MC-60A, MC-80, MC-85 deluxe base station mics.
- PC-1A phone patch
- TL-922A linear amplifier
- SM-220 station monitor
- BS-8 pan display
- SW-200A and SW-2000 SWR and power meters
- IF-232C/IF-10B computer interface.

Complete service manuals are available for all Kenwood transceivers and most accessories. Specifications, features, and prices are subject to change without notice or obligation.



1) **CW Variable Bandwidth Tuning.** Vary the passband width continuously in the CW, FSK, and AM modes, without affecting the center frequency. This effectively minimizes QRM from nearby SSB and CW signals.

2) **AF Tune.** Enabled with the push of a button, this CW interference fighter inserts a tunable, three pole active filter between the SSB/CW demodulator and the audio amplifier. During CW QSOs, this control can be used to reduce interfering signals and noise, and peaks audio frequency response for optimum CW performance.



3) **SSB Slope Tuning.** Operating in the LSB and USB modes, this front panel control allows independent, continuously variable adjustment of the high or low frequency slopes of the IF passband. The LCD sub display illustrates the filtering position.

4) **IF Notch Filter.** The tunable notch filter sharply attenuates interfering signals by as much as 40 dB. As shown here, the interfering signal is reduced, while the desired signal remains unaffected. The notch filter works in all modes except FM.

- **Complete all band, all mode transceiver with general coverage receiver.** Receiver covers 150 kHz-30 MHz. All modes built-in: AM, FM, CW, FSK, LSB, USB.
- **Superb, human engineered front panel layout for the DX-minded or contesting ham.** Large fluorescent tube main display with dimmer; direct keyboard input of frequency; flywheel type main tuning knob with optical encoder mechanism all combine to make the TS-940S a joy to operate.
- **One-touch frequency check (T-F SET) during split operations.**
- **Unique LCD sub display indicates VFO, graphic indication of VBT and SSB Slope tuning, and time.**
- **Simple one step mode changing with CW announcement.**
- **Other vital operating functions.** Selectable semi or full break-in CW (QSK), RIT/XIT, all mode squelch, RF attenuator, filter select switch, selectable AGC, CW variable pitch control, speech processor, and RF power output control, programmable band scan or 40 channel memory scan.

# KENWOOD

KENWOOD U.S.A. CORPORATION  
2201E. Dominguez St., Long Beach, CA 90810  
P.O. Box 22745, Long Beach, CA 90801-5745



# KENWOOD

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220 MHz  
TH-315A  
Here Now!

## This HT Has it All!

### TH-215A/315A/415A

Full-featured Hand-held Transceivers

Kenwood brings you the greatest hand-held transceiver ever! More than just "big rig performance," the new TH-215A for 2 m, TH-315A for 220 MHz, and TH-415A for 70 cm pack the most features and the best performance in a handy size. And our full line of accessories will let you go from hamshack to portable to mobile with the greatest of ease!

- **Wide receiver frequency range.** Receives from 141-163 MHz. Includes the weather channels! Transmit from 144-148 MHz. Modifiable to cover 141-151 MHz (MARS or CAP permit required).
- **TH-315A covers 220-225 MHz, TH-415A covers 440-449.995 MHz.**
- **5, 2.5, or 1.5 W output, depending on the power source.** Supplied battery pack (PB-2) provides 2.5 W output. Optional NiCd packs for extended operation or higher RF output available.
- **CTCSS encoder built-in.** TSU-4 CTCSS decoder optional.
- **10 memory channels store any offset, in 100-kHz steps.**
- **Odd split, any frequency TX or RX, in memory channel "0."**
- **Nine types of scanning!** Including new "seek scan" and priority alert. Also memory channel lock-out.
- **Intelligent 2-way battery saver circuit extends battery life.** Two battery-saver modes to choose, with power saver ratio selection.
- **Easy memory recall.** Simply press the channel number!
- **12 VDC input terminal for direct mobile or base station supply operation.** When 12 volts applied, RF output is 5 W! (Cable supplied!)
- **New Twist-Lok Positive-Connect™ locking battery case.**
- **Priority alert function.**
- **Monitor switch to defeat squelch.** Used to check the frequency when CTCSS encode/decode is used or when squelch is on.



- **Large, easy-to-read multi-function LCD display with night light.**
- **Audible beeper to confirm keypad operation.** The beeper has a unique tone for each key. DTMF monitor also included.
- **Supplied accessories:** Belt hook, rubber flex antenna, PB-2 standard NiCd battery pack (for 2.5 W operation), wall charger, DC cable, dust caps.



#### Optional Accessories:

- PB-1: 12 V, 800 mAh NiCd pack for 5 W output
- PB-2: 8.4 V, 500 mAh NiCd pack (2.5 W output)
- PB-3: 7.2 V, 800 mAh NiCd pack (1.5 W output)
- PB-4: 7.2 V, 1600 mAh NiCd pack (1.5 W output)
- BT-5 AA cell manganese/alkaline battery case
- BC-7 rapid charger for PB-1, 2, 3, or 4
- BC-8 compact battery charger
- SMC-30 speaker microphone
- SC-12, 13 soft cases
- RA-3, 5 telescoping antennas
- RA-8B StubbyDuk antenna
- TSU-4 CTCSS decode unit
- VB-2530: 2m, 25 W amplifier (1-4 W input)
- LH-4, 5 leather cases
- MB-4 mobile bracket
- BH-5 swivel mount
- PG-2V extra DC cable
- PG-3D cigarette lighter cord with filter



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# The Radio Amateur's Journal



**ON THE COVER:** W1ICP has probably written more words and lectured more hams about antennas than any other person, dead or alive! Keep up the good work, Lew. Photo by Larry Mulvehill, WB2ZPI.

APRIL 1989

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# Zero Bias

AN EDITORIAL

It's the middle of February on a chilly, rainy day as I sit down to write this editorial for the April issue. The most inviting thing that comes to mind arrived this morning from Steve Dunkerley, VP9IM. Steve is the Editor of *Splatter Splatter*, the newsletter of The Radio Society of Bermuda. I've been receiving this bulletin for years and have always enjoyed reading the club news and activities taking place on Bermuda. Today I have been entertaining the idea of doing a first-hand food review of their next event. No, I've never been to Bermuda, but today it seems especially attractive via the newsletter. Thanks, Steve and the gang.

On a much brighter note, this is the April issue, and April is the month of the year when amateurs throughout the world have this uncontrollable urge to return to Dayton, Ohio. Maybe it's the challenge of trying to work (hypothetically, at least) CQ's DX Award or DXCC on the HT. The annual Dayton Hamvention provides even the most staid conservative amateur with the opportunity to experience sensory overload first-hand. There is so much to see, touch, examine, try, and possibly buy all at one time over one weekend that most people's senses simply can't take it all in. It's the Dayton Stare, or the Dayton Fatigue coupled with the Dayton Smile, that most of us look forward to each year. It's the physical challenge of trying to take in and see all (I mean ALL) of the commercial exhibits and all (every single one) of the fleamarket tables. Then, approaching the exalted state of numbness, you try to find the exact fleamarket table where you last saw some particular goodie that you just have to have—you know, the one which you said was too heavy and you didn't want to carry it around with you. Well, if you wait that long, you're bound to see someone else carrying that goodie out to the parking lot—that is, if you can still focus on anything.

The past year I've been heartened to see how many of you stop by the CQ booth at hamfests to check with me first as to the food quality. From what I've seen and smelled at most hamfests, I'd probably eat at home or bring a sandwich. Now there are exceptions, and I do receive invitations to attend hamfests where there is purportedly wonderful victuals in the offing. Generally speaking, however, avoid the food and save your money.

If you've saved your money and are looking for something to buy, I have a suggestion. Actually, this came about because someone sent me a copy, and after examining it for a while I started to tell others about it. It's a book called *The International Awards Guide Book*. It is truly a beautiful presentation of 750 amateur radio awards, 634 of them presented in full color (for those of us who like to imagine what it would be like to have one). It's almost a coffee-table kind of book in large format (8½" x 11½")

with 422 pages of award information from 70 DXCC countries. The book is produced in Indonesia by YB0WR and costs \$33.50, which includes surface/sea mail. Obviously, airmail will increase the price dramatically. If you want more information on the book, you can contact: M.S. Lumban Gaol, YB0WR, Jl. Garuda No. 62, Jakarta 10620, Indonesia.

## Travels with CQ

The CQ gang made its way south in early February for the season's opener, The Miami Hamfest. It was perfect timing, as the weather in New York turned cold and Miami was a warm, inviting 85°. Once again the committee did an outstanding job in keeping the exhibitors well fed. I did notice that in the exhibitors' lounge someone had put up a framed copy of my editorial commending their efforts from last year.

There were a lot of people in attendance, including many nonamateurs. The big sign by the road indicated that it was a "computer and amateur radio show," and so many computer enthusiasts showed up. For many of them it was their first exposure to amateur radio, and they did ask questions. In fact, several bought every variety of book available on packet and RTTY with that look of "How long has this been going on?" By next year hopefully many of them will have call-letter name tags and HTs.

Dick added to his copper collection by several thousand (or so it seems) feet of antenna wire and other assorted "gotta have" goodies. At the moment I can't remember exactly what it was I brought back, except to say that it seemed heavy. It was the first show of the season, and we were out of training and shape, so some of it is a blur.

This coming weekend I will be at the Cincinnati Hamfest where I'll be joined by Steve Bolia, N8BJQ. This one as I remember had a good fleamarket. I'll let you know all about it next month. There's still the Charlotte Hamfest and the one in Kansas City to do before the Dayton Hamfest, so we should be in great shape for the big one. It's sort of like training for the New York Marathon.

## CQ Survey

In March we included a reader survey card to find out how you felt about the issue of a code-free license. While it is much too early to have any final tabulations, the cards are still coming in heavily, and the information from the first 1000 cards is interesting. The majority of those responding do indeed favor a code-free license to attract newcomers to the hobby, and as a sub-group, the majority of League members responding also favor a code-free entrance-level license. Perhaps the message is that we as amateurs are willing to look beyond ourselves to see the needs of the hobby.

## Our Readers Say

Your response to my editorials has been great. I've received a tremendous amount of mail on my editorials concerning a code-free license. Again, the majority of you are in favor of a change towards a simple entrance-level license. The comments in general were good, even in those letters which vehemently disagreed with me.

I think that people for the most part are really trying to see and understand the issues involved, and their comments, pro or con, do reflect a sincerity rather than an emotional outburst. Most of you do realize that no one is trying to take anything away from you nor is anyone trying to do away with CW as a viable means of communication or as a requirement for an HF license. Most of you grasp the idea that all we're talking about is strictly an entrance-level license that hopefully will attract more and younger members to our ranks. CW as a requirement for an HF license is stipulated in the WARC agreements.

## The WNZ Award

Thanks to Patty Winters, N6BIS, who wrote an article on our WNZ Award in the February issue, our request box is full of SASEs for rules and applications. We are filling those requests as quickly as possible, and with 10 meter conditions constantly improving, many Novices and Technicians will be proudly displaying this mark of achievement. If you check George Jacob's Propagation Column, you'll see that we still have a ways to go before this cycle peaks, and the best is truly ahead of us.

## Thanks For The Birthday Present

It was perfect timing and came as a welcome gift. Pedro, HC1OT, got his QSL card to me on my birthday, thereby giving me my 100th country confirmed on 10 meters. Thanks, Pedro, for starting the day off with a smile. Now all I have to do is find the time to sit down and do the paperwork for the CQ DX Award and the League's DXCC. It's not that hard to get hooked on paper chasing, and it's a lot of fun.

## Are You Having Fun Yet?

Probably not enough of you are, but some of you seem to be enjoying yourselves and having a good time with amateur radio. Whatever aspect of the hobby you're involved with should be enjoyable. Having fun is infectious. First you feel it, then you talk about it, and soon others want to experience it, too. Remember that you (and I) reflect the hobby (or service, if you will), and if you're not having fun with it, why would anybody want to emulate you? Relax and enjoy. Who knows? You may even notice the corners of your mouth turn up and form a smile.

73, Alan, K2EEK



Others May Try to Imitate, But...

Only One Can Be The Best



Morse Code - Baudot - ASCII - AMTOR - Packet - Facsimile - Navtex

Amateur Net Price \$319.95

It's a lesson you learn very early in life. Many can be good, some may be better, but only one can be the best. The PK-232 is the best multi-mode data controller you can buy.

## 1 Versatility

The PK-232 should be listed in the amateur radio dictionary under the word Versatile. One data controller that can transmit and receive in six digital modes, and can be used with almost every computer or data terminal. You can even monitor Navtex, the new marine weather and navigational system. Don't forget two radio ports for both VHF and HF, and a no compromise VHF/HF/CW internal modem with an eight pole bandpass filter followed by a limiter discriminator with automatic threshold control.

The internal decoding program (SIAM<sup>tm</sup>) feature can even identify different types of signals for you, including some simple types of RTTY encryption. The only software your computer needs is a terminal program.



PC Pakratt Packet TX/RX Display



Facsimile Screen Display

## 2 Software Support

While you can use most modem or communications programs with the PK-232, AEA has two very special packages available exclusively for the PK-232....PC Pakratt with Fax for IBM PC and compatible computers, and Com Pakratt with Fax for the Commodore 64 and 128.

Each package includes a terminal program with split screen display, QSO buffer, disk storage of received data, and printer operation, and a second program for transmission/reception and screen display of facsimile signals. The IBM programs are on 5-1/4" disk and the Commodore programs are plug-in ROM cartridges.

## 3 Proven Winner

No matter what computer or terminal you plan to use, the PK-232 is the best choice for a multi-mode data controller. Over 20,000 amateurs around the world have on-air tested the PK-232 for you. They, along with most major U.S. amateur magazines, have reviewed the PK-232 and found it to be a good value and excellent addition to the ham station.

No other multi-mode controller offers the features and performance of the PK-232. Don't be fooled by imitations. Ask your friends, or call the local amateur radio store. We're confident the PK-232 reputation will convince you that it's time to order your very own PK-232.

Call an authorized AEA dealer today. You deserve the best you can buy, you deserve the PK-232.

**Advanced Electronic Applications, Inc.**

P.O. Box C-2160  
Lynnwood, WA 98036  
206-775-7373

**AEA** Brings you the Breakthrough!



# Announcing

•**Benton, Kentucky** - The Marshall County ARA will operate KM4GS at Benton, Kentucky from 1700Z April 2 until 2359Z April 3 in the lower 25 kHz of the General portion of the 80-10 meter bands and the 10 meter Novice band. For a special "Tater Day" QSL send a QSL and SASE to KM4GS, P.O. Box 917, Calvert City, KY 42029. Also a special QSL to SWLs for report and SASE

•**Philadelphia, Pennsylvania** - The Olympia Radio Amateur Club will operate WA3BAT from the *U.S.S. Becuna*, a WW II submarine, and the *U.S.S. Olympia* from 1300Z April 8 until 2000Z April 9 on CW 7.133 and 14.050, and phone 3895, 7245, 14245, 21365, 28305 (all within 10 kHz). Also FM 145.270, sideband 144.200, and RTTY on 10 meters. For an 8 by 11 inch certificate stateside send large SASE and QSL; foreign 1 IRC, QSL, and SAE. Send to Olympia Radio Amateur Club, P.O. Box 928, Philadelphia, PA 19105 (not Callbook address).

•**Asotin County, Washington** - The Asotin County, Washington Amateur Radio Emergency Service (ARES) will sponsor a special event to commemorate the Washington State Bicentennial from 0000Z April 8 to 2359Z April 9. Contacts may be made with any Asotin County amateur station, any mode, any band, but must be simplex. CW calling CQ LC. Novice bands included. CW 50 kHz up; phone middle of general class portion; Novice middle of

band. Send QSL to station contacted with business-size SASE, and receive a certificate. For more information, contact KN7L, 1355 Chestnut, Clarkston, WA 99403.

•**Tucson, Arizona** - The Old Pueblo Radio Club will operate W7GV from 1500Z April 15 through 2400Z April 16 to commemorate 60 years of worldwide amateur operation on the 10 meter band. Operation will be over the entire 10 meter band, including CW, phone, FM, and packet gateways. For a QSL, send your QSL and SASE to W7GV, Box 42601, Tucson, AZ 85733.

•**ARRL/VE Exams in North Olmsted, Ohio** - The North Coast ARC will be holding ARRL/VE exams at the North Olmsted Community Cabin on April 15, June 10, August 12, October 14, and December 9. For more information, contact Dan Sarama, KB8A, 15591 Rademaker, Brookpark, OH 44142.

•**Lake Jackson, Texas** - The Brazosport ARC will operate NV5L April 21-22 to celebrate the 153rd anniversary of the Battle of San Jacinto. Suggested frequencies: CW 7.135, 14.035, 21.035; SSB 14.235, 21.335, 28.335. For a commemorative QSL send large SASE to BARC, P.O. Box 291, Lake Jackson, TX 77566.

•**Adena, Ohio** - The North Carolina Chapter of the Triple States Radio Amateur Club will operate N4KVF at Reed's Gold Mine, where gold was first discovered in the U.S., from 1400-

2200Z April 22 on CW 7050, 14050, 28050; SSB lower 25 kHz General bands 40 and 20 meters; SSB Novice 10 meters, 28.480. For certificate send number 10 SASE to Walter Bastow, 484 High Rock Road, Gold Hill, NC 28071.

•**Nebraska City, Nebraska** - The Nebraska City ARC will operate K0TIK from Nebraska City to celebrate the founder of Arbor Day. Operation will be on the upper portion of the General class phone bands, 80 to 15 meters, and the upper portion of the 10 meter Novice phone band from 1400Z April 27 to 0000Z April 30. To receive a certificate, send an 8½ by 11 SASE and your QSL to Barbara Nihart, Nebraska City ARC, 7731 Holdrege St., Lincoln, NE 68505.

•**Pitcairn Island** - The radio amateurs on Pitcairn Island in the South Pacific will operate special event stations in commemoration of the 200th anniversary of "Mutiny on the Bounty." Operation will be as time and band conditions permit on April 28 from 0000-2359Z on 10, 15, and 20 meters (exact frequencies not available). Look for VR6ID, VR6KB, VR6KY, VR6MW, VR6TC, and VR6YL. For special QSL send your QSL, contact number, and SASE to Bounty Mutiny Day, 7462 W. Lawler Ave., Niles, IL 60648.

•**W7UQ Centennial Reunion-on-the-Air** - The University of Idaho ARC will be on the air on April

(Continued on page 83)

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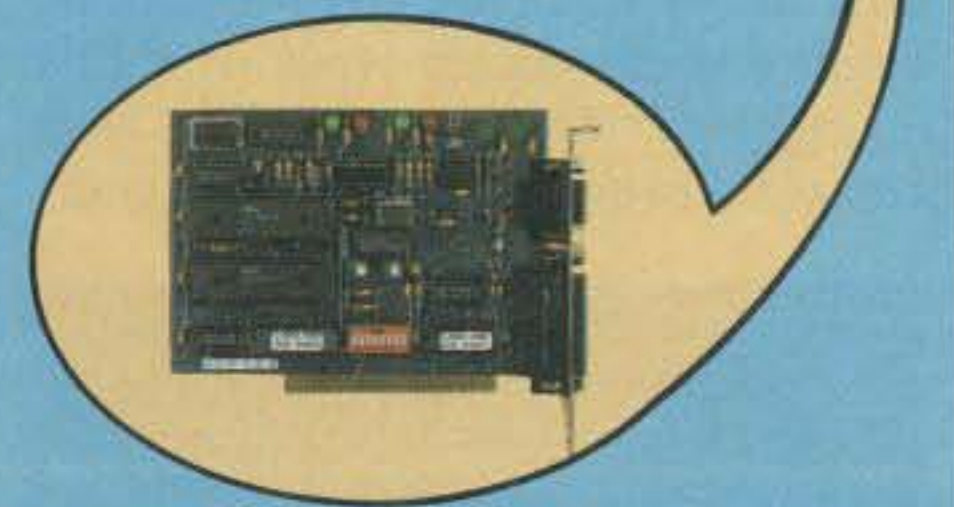
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CIRCLE 68 ON READER SERVICE CARD



## Our Readers Say

### A 10 Meter Free-For-All

Editor, CQ:

This week after coming home from work I turned on the rig and 10 meters was rolling. I mean China, Indonesia, the Philippines, and other Far East countries were pounding very good signals to the U.S.—on the Novice portion, no less! What a chance for us to catch a few countries. And boy, were there pile-ups.

You know, I thought that we Novices have handled pile-ups pretty well so far, but this week was a mess. For the most part courtesy

and professional radio operation seemed to disappear when working these DX stations. It was a free-for-all at best. Is this how we are going to handle good DX conditions?

There is no good reason to give a callsign more than twice. It is down right poor manners to give a callsign in the middle of an ongoing QSO the DX station has with someone else. And Novices weren't the only ones. There were General, Advanced, and Extras out there leading the pack (I could tell. Their callsigns matched their 20 dB plus.). Nice signals, guys, but poor examples of operation for us Novices.

I wonder if these guys behave as such on their own portions of the bands. And if not, why are they doing it on the Novice portion?

Dennis Murphy, KB6LZW  
Fort Bragg, CA

### More Homebrew, Please

Editor, CQ:

Would appreciate an article on AM components source and transmitting vacuum tubes. Things are getting boring with only SSB and no home construction.

Chadwick Johnson, M.D., W5DBA  
Alva, OK

### QSL Collection Begun

Editor, CQ:

The Wireless Institute of Australia has commenced a QSL collection. This comprises pre-war QSLs, prefixes, special-event cards, DXCC countries, and a large thematic collection (e.g., ships, hobbies, music, animal life, etc.). We have received many donations of QSLs (especially from Old Timers), and we also make use of unclaimed QSLs through the QSL bureaus.

I would be willing to assist anybody with any historical information I have, including photocopies of QSLs. The more use we can make of the collection, the better.

The purpose of this letter is to enlist the help of any of your many readers throughout the world. Any donations of QSLs—especially rare DX, special-event QSLs, unusual prefixes, and pre-war QSLs—would be particularly appreciated, although any donation would be most welcome. In some cases we have had whole QSL collections donated, in others, a few. But no matter what the number, these people have helped save something for the future. So much has been lost already. Who knows? Somebody out there may surprise us with whole parcels of cards. If anybody would like to help, please send QSLs to the address below. All donations will be acknowledged personally with sincere thanks.

Ken Matchett, VK3TL  
The Wireless Institute of Australia  
412 Brunswick Street  
Fitzroy, 3065 Australia

### A Boat Anchor Edition

Editor, CQ:

I just came up with an idea for a special issue of CQ which I think is terrific. Let me bounce it off you.

The antenna issues are fine. November's packet issue was ok, but how about this—a boat anchor edition! For example: stopping drift in that old Swan 500CX, adding RIT to your Drake TR-4, converting your "S" Line to the WARC bands, modifying your Heath automatic antenna tuner to read PEP, putting digital readout on your "Lunchbox" (only kidding).

Got the picture? You might already have a lot of the articles in your files, and I think that when this edition hit it would be the talk of the airwaves. More hams might even subscribe to CQ as a result of it and the only one who would have to work harder would be the printer.

Joe Adinolf, WB6ZWS  
Ojai, CA

(continued on page 119)



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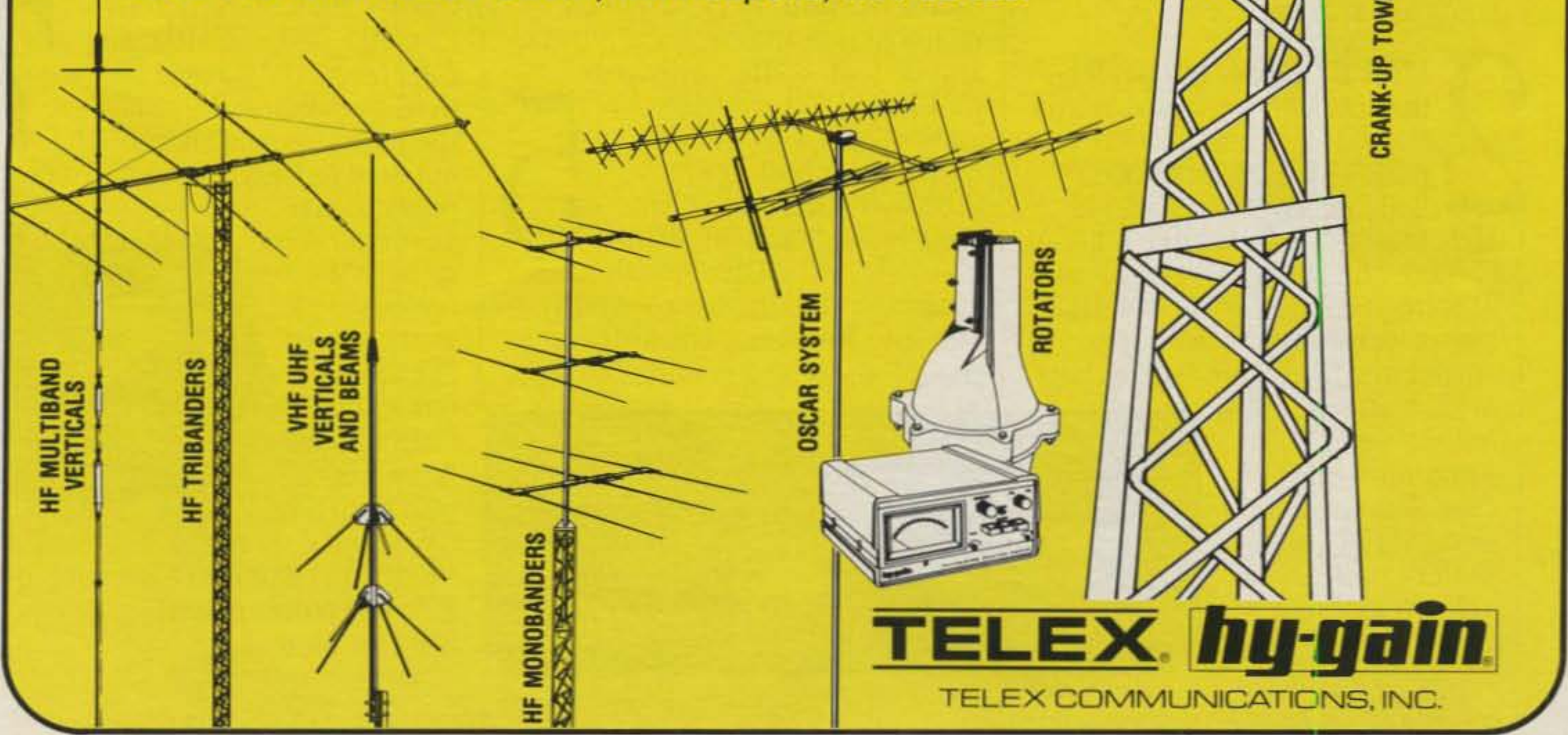
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**2 Mini HT packs big performance.** Choose Yaesu's miniature FT-23R Series for serious pocket-size performance. 2-meter, 220-MHz, and 440-MHz models. Includes 10 memories (7 store odd splits). Memory scan at 2 frequencies per second. High/low power switch. LCD power output and "S"-meter display. Lots of PL features. Auto battery saver. Aluminum-alloy case. Water-resistant seals. Variety of battery packs available, from 2 to 5 watts. More.

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**9** really works the DX! 100 watts RF output on 160 to 10 meters. Continuous receive from 100 kHz to 30 MHz. LSB, USB, CW, and AM. Slot for optional

FM unit. 20 memories. Split-frequency operation. CW and AM filters. Plus one-touch noise blanker. All-mode squelch. RIT. 20-dB attenuator. Great receiver with superb overload protection. More.

**10 HF field-day favorite.** Contesters appreciate the portability and performance of Yaesu's FT-757GX Mark II. 100-watt output. 10 memories. Dual VFOs. Slow/fast tuning selection. IF notch filter. Iambic keyer. 600-Hz CW filter. AF speech processor. 500 kHz to 30 MHz receive. 10 to 160 meters transmit, including WARC bands. All-mode coverage. QSK operation. Continuous RTTY operation up to 30 minutes. More.



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**12** receive. AM, FM, SSB, CW, AFSK modes built in. 10 memories for frequency, mode, and CTCSS info. Dual VFOs. VFO tracking. Digital display in 10 Hz steps. Slow/fast main dial tuning. Synthesizer step programming at up to 99.99 kHz per step. Digital RF power/SWR meter. Built-in RF preamplifier. And these are just a few highlights!



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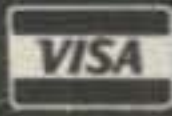
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**If someone tells you to "go fly a kite," don't feel insulted. He may be trying to help you get your antenna up.**

## Hints For Kite-Supported Antennas

BY STAN GIBILISCO\*, W1GV

**A**lmost everyone I have talked with has expressed interest when I tell them I am using a kite-supported sloping long wire. I had a QSO with one old timer who had been an amateur for 50 years, and he said I was only the second amateur he'd ever come across who uses kites regularly as antenna supports. It seems we have to reinvent the wheel now and again.

Of course, a kite is not my only antenna support. I have balloons, too! And then there's always the inverted L. I live in a neighborhood that is elegant enough—underground utility wiring, the works—that a large antenna farm would really spoil it. And I like to build my own antennas. It's less expensive than buying them. And then there's this compulsion to be different, especially if the results are functional and practical.

### Minimizing Losses

With all the emphasis on antenna *gain*, it is easy to forget that we must be concerned also about minimizing *loss*. Losses in an antenna system can occur in the earth near the antenna, especially at high frequencies. Loss also inevitably takes place in a feed line by dissipation and also in the form of unwanted line radiation. Losses can also be present in the antenna tuning network. This is especially true of tuning networks that employ ferrite-core baluns at high power levels with high SWR.

I have a tuning network that gets so hot at certain frequencies, with certain antenna lengths, that it is obvious that it is dissipating a lot of power. With 500 watts output the tuner got hotter with a  $\frac{3}{8}$ -wave wire at 1.8 MHz than the transceiver final amplifier compartment. The SWR was reduced to 1:1, but I wonder what it would have been had the transmatch been 100 percent efficient.

\*871 S. Cleveland Ave., No. P-12, St. Paul, MN 55116

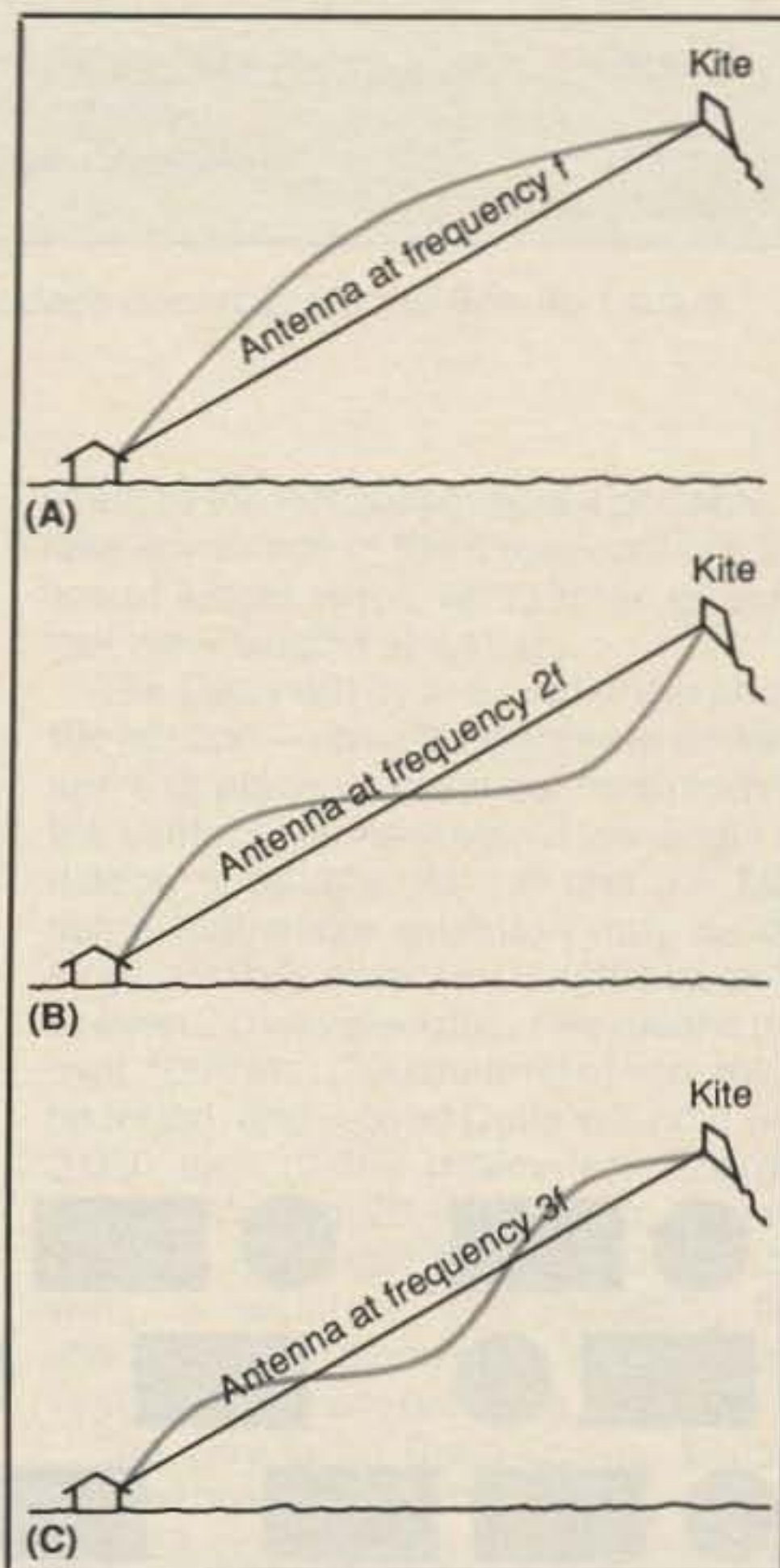


Fig. 1—Current distribution for wires of length 0.5 (A), 1.0 (B), and 1.5 (C) wavelengths. The same wire is used at the fundamental (A), second harmonic (B), and third harmonic (C). Dotted lines show relative RF current at various points along the wire.

Ground losses are minimized by placing horizontal antennas up high—at least a quarter wavelength above the ground. With kite-supported slopers, one end of the antenna is at or very near the ground. Losses are minimized by getting the high-current parts of the antenna above the ground to as great an extent as possible.

In practice this means that the length of a kite-supported long wire should be an integral multiple of  $\frac{1}{2}$  wavelength so that a current node (voltage maximum) appears at the feed point. Examples are shown in fig. 1, with dotted lines indicating the RF current distribution for wires 0.5, 1.0, and 1.5 wavelengths long.

Feeding the wire may be done either by directly connecting the wire to the output of a transmatch, or by Zepp feed. Zepp feed is the use of a parallel-wire line to end feed a wire that is an integral multiple of  $\frac{1}{2}$  wavelength long. If the antenna length is exactly resonant, there will be very little (although some) radiation from the line. The SWR will always be high when Zepp feed is used, since the impedance of an end-fed wire an integral multiple of  $\frac{1}{2}$  wavelength is on the order of thousands of ohms. Therefore, open-wire line is required, especially at higher power levels. Television-type twin lead is good only at low power and for short runs.

It may be necessary to experiment with line lengths when Zepp feed is used. One side of the line is clipped to the end of the wire while the other line wire is left free. The feed line should be kept as short as possible to minimize losses. Ideally, a transmatch with a split-stator output capacitor is best. If a balun-type transmatch is used, make sure the balun core does not saturate. If the balun gets hot, this heat will represent power not radiated.

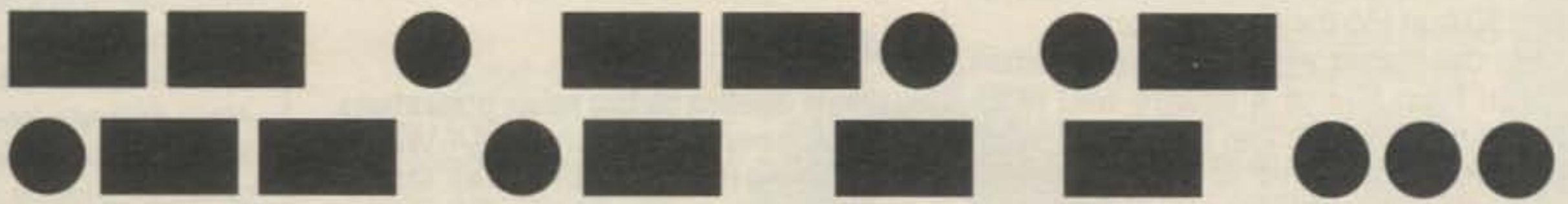
### Choice of a Kite

After plenty of experimenting with various kites, and after numerous kite-eating trees had gotten their fill and countless little cheap kites had been ripped up by gusts of wind or crashed into neighbors' rooftops, I can say from experience that the choice of a kite is important.

First, don't mess around with dime-store kites. They may lift the wire, but they are often unstable because of their small size and because of the lack of precision in their manufacture. Good quality kites are available via mail order from In-



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Beaufort Number	Speed, MPH	Description of Wind Activity	Best Kite Types
0	0	Smoke rises vertically	None
1	1-3	LIGHT AIR: Smoke drifts; wind cannot be felt	None
2	4-7	LIGHT BREEZE: Wind felt on face; leaves rustle; weather vanes move	Delta
3	8-12	GENTLE BREEZE: Leaves and twigs move; light flags are extended	Delta Delta Conyne
4	13-18	MODERATE BREEZE: Wind raises dust and loose papers; small branches move; flags flap	Delta Delta-Conyne Airfoil
5	19-24	FRESH BREEZE: Small trees in leaf sway slightly; wavelets form on lakes and ponds	Delta-Conyne Airfoil Ram
6	25-31	STRONG BREEZE: Large branches move; telephone lines whistle	Airfoil Ram
7	32-38	STRONG WIND: Whole trees in motion; walking impeded	Ram
8+	39+	GALE: Progressively greater effects	Not recommended

Table 1- Kite types for various wind speeds according to the Beaufort scale.

to the Wind (1408 Pearl Street, Boulder, CO 80302) and other suppliers.

You will need at least two different kites—one for lighter winds and one for heavier winds. The types of kites most often used are the Delta, Delta-Conyne, Airfoil, and Ram. Table 1 illustrates the Beaufort scale of wind speeds and the types of kites that are best for various winds. Kites can fly in surprisingly light winds. Moreover, even when there seems to be no wind at the surface level, there may be a fairly good breeze at an altitude of 100 feet (30 meters) or more.

I use an 84 inch (just over 2 meter) wingspan lightweight Delta for winds of less than about 20 miles per hour. For sustained winds in the range 15 to 20 miles per hour with occasional gusts to around 25 miles per hour, the top keel ring connection is better. A tail, consisting of two or three lengths of packaging ribbon about 15 feet (5 meters) long, aids in stability. This Delta will stay aloft in surprisingly light winds once it has been set at a satisfactory "cruising" altitude, usually 150 feet (50 meters) or more.

For the higher winds I employ a small Ferrari Ram kite of 4 square feet (0.37 square meter). This kite has seven compartments that serve to let air through while offering sufficient resistance to lift several hundred feet of lightweight, hard-drawn aluminum welding wire. The Ram never pulls hard, even in winds of near-gale force. With tails, I have flown this kite in winds gusting to more than 40 miles per hour, although a fast dive may tangle the bridle and cause the kite to collapse. The Ram flies at a lower angle and generally this requires a longer antenna. The low angle (from 30 to 40 degrees with re-

spect to the horizon) makes it possible to take advantage of the directional properties of longer wires, up to three or even four wavelengths at 7 MHz.

The Delta will fly at a high angle above the horizon—up to 70 degrees at times—and this places a practical maximum on the useful antenna length if low-angle radiation is sought. At 1.8 and 3.5 MHz some high-angle radiation may be desired, and this allows for lengths up to 1.5 or even 2.0 wavelengths. This means that over 1000 feet (300 meters) of wire might be lofted, and a good Delta will do it with 0.030 inch (0.762 millimeter), approximately AWG No. 20, hard aluminum welding alloy. For larger Deltas or Delta-Conynes, a separate nonconducting line should be used along with the wire to prevent the wire from breaking.

The very large Delta-Conyne kites—winged boxes—will lift very long wires in a wide range of winds. I do not have such a kite yet, but I may get one for low-frequency and very-low-frequency receiving antennas.

## Safety

### I must mention certain safety precautions.

First, keep an ear on NOAA Weather Radio when flying kite antennas. Most cable television systems now have a continuous NOAA broadcast and displays of local radar. If showers or thunder showers are anywhere nearby, do not fly a kite antenna. The storms may change position or spread too quickly for you to bring in the kite.

You must expect that a sizable electrostatic voltage will develop on a kite-supported longwire and you will be likely to get "zapped" now and then in a manner

similar to the shock you get when you shuffle on a carpet in dry weather and then touch something metallic. If you are using a wire more than about 300 feet (100 meters) long, some means should be employed to discharge this voltage prior to touching the wire. The shock is generally not dangerous except it can startle you and you might let go of the spool! You may want to place a large-value choke across the output of your antenna tuner if the feed connection is not already grounded for direct current.

You must never fly a kite antenna so that it can come down on a power line. This, of course, means that the length of conducting wire must be less than the straight-line distance from the feed point to the nearest above-ground utility line. This precludes kite-supported antennas for many amateurs except for very short wires, but there are plenty of amateurs who are fortunate enough to have the space necessary for lofting long wires at lower frequencies.

All standard kite-flying rules should be followed. Especially keep in mind the Federal regulation that kites must not present a hazard to persons, property, or other aircraft, no matter how small they are. For a kite that weighs in excess of 5 pounds special regulations apply, but it is doubtful any amateur would ordinarily need a system that large.

## Leader Lines

Sometimes you do not need or want a kite-supported antenna to be very long, yet it is necessary to loft the kite quite high in order for it to be stable. In this case a leader line can be used. Simply let the kite go until it is stable, and connect the wire to the end of the leader line using a button as an insulator (fig. 2). The leader line must have tensile strength equivalent to that of the wire.

This kind of system makes it possible to fly rather short antennas in places where power lines prevent using longer ones. You only need to be sure that the conducting wire is short enough so that it cannot fall on the utility line; also the leader line must not be wet.

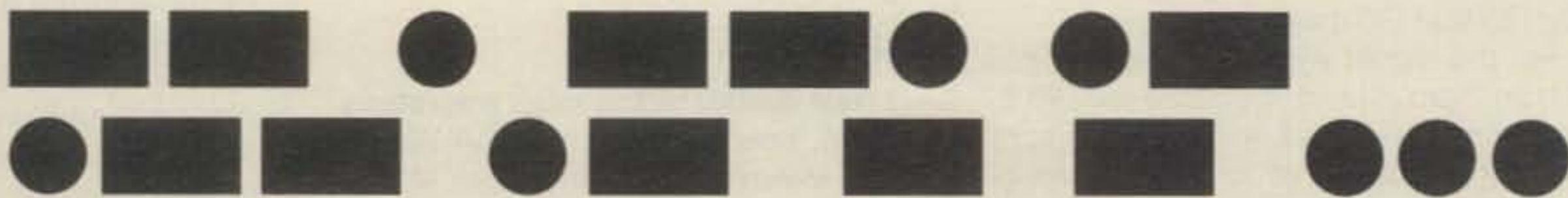
Snap swivels are available from kite manufacturers and distributors for very reasonable cost. Swivels keep torque on the line or wire from disturbing the kite. Also, swivels keep the leader line from twisting and getting tangled. If a kite does numerous loops, the swivel will keep the line or wire stable and free from twists or kinks.

## Measuring Wire Length

If you simply use a random end-fed wire, you can estimate wire length and not be concerned about precise values. However, with Zepp feed the length is quite critical, if optimum performance is to be had. Also, you want to know the



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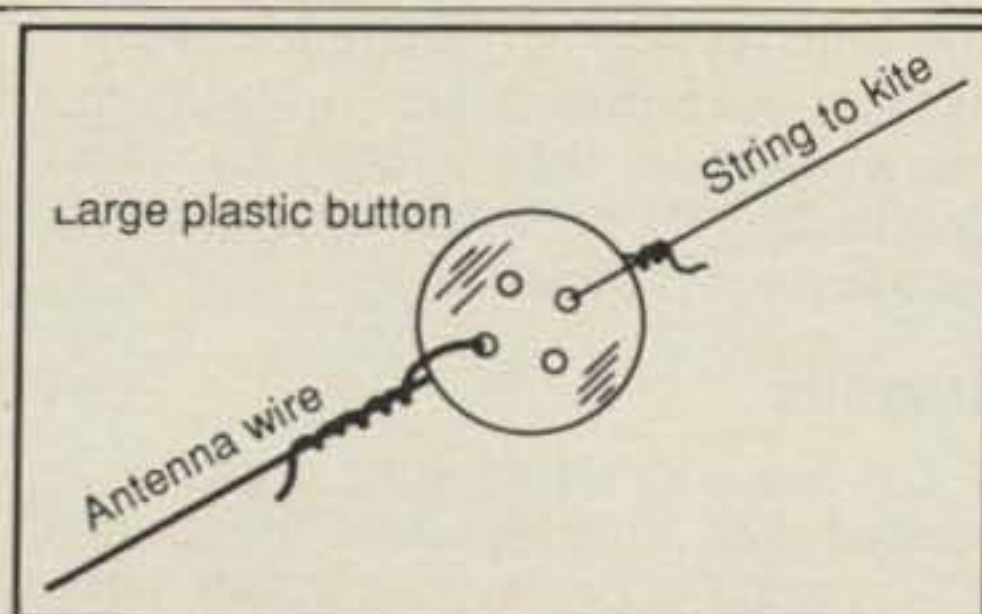


Fig. 2- Attaching wire and leader line to a plastic button provides good mechanical strength and electrical insulation for low to moderate power levels.

length so that you can be sure that your antenna cannot hit a power line. And of course you want to be able to brag if the wire is especially long.

The wire can be premeasured and lengths indicated by small bits of tape. This is probably the best method. Ideal lengths for Zepp feed can then be calculated by means of the formula:

$$L_{\text{feet}} = 984 \frac{N - 0.025}{f}$$

$$L_{\text{meters}} = 300 \frac{N - 0.025}{f}$$

where **N** is the wire length in wavelengths ( $N = 0.5, 1.0, 1.5, 2.0, \dots$ ) and **f** is the frequency in megaHertz.

The bandwidth is rather narrow when Zepp feed is used. This is true especially as the value of **N** gets large.

If you have an exceptionally good ground system, as you should always try to have when end-fed antennas are used, you can determine the exact electrical length by another method. For *odd* multiples of  $\frac{1}{2}$  wavelength, you may directly feed the wire at exactly *half* the operating frequency and the result will be a low SWR without using the transmatch. It is important to directly feed the wire—no

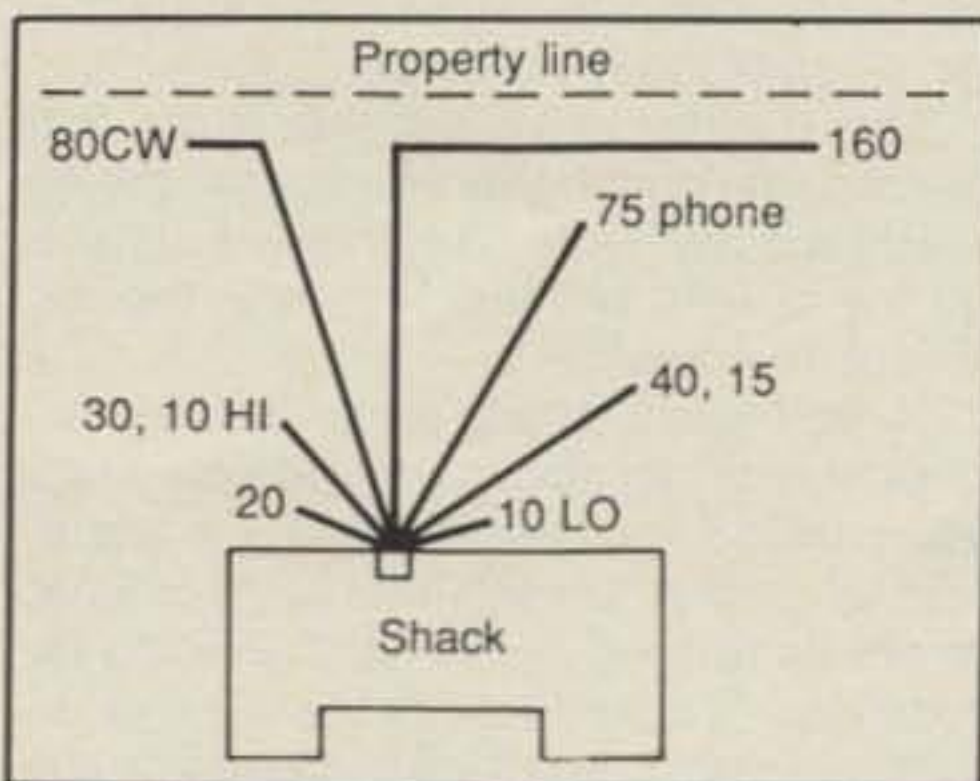
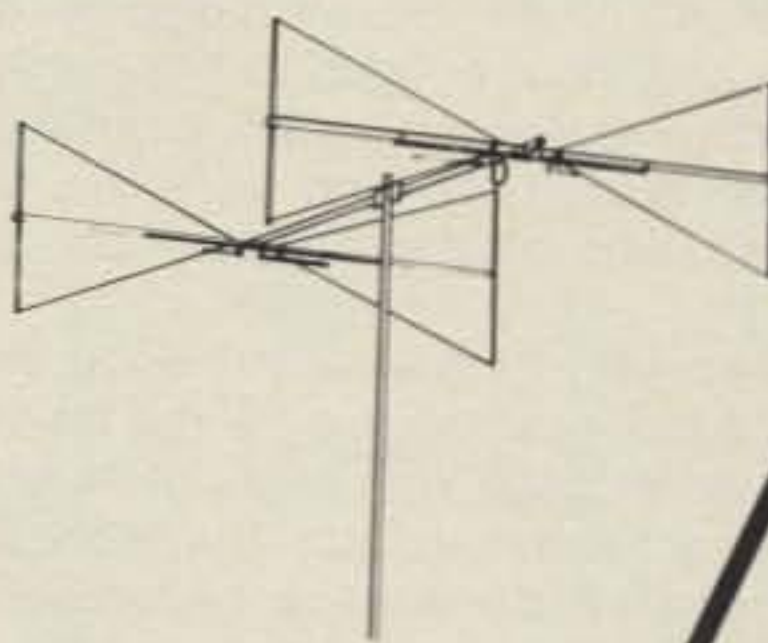


Fig. 3- Ground lead installation at a hypothetical location. Generally, for this type of low-current setup only one "radial" is needed for each frequency of operation. On 80/75 and 10 meters two radials are used for each band because of the relatively broad frequency ranges of the bands.

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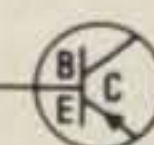
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feed line—and to avoid bends that are not necessary. The SWR may not dip to exactly 1:1, but there will be a sharp dip at the frequency where the wire is an odd multiple of ¼ wavelength.

For example, you might want to tune an antenna to be ½ wavelength at 7.030 MHz. You would then let out sufficient wire so you are sure you are near the required length:

$$L_{\text{feet}} = 984 \frac{(2.5 - 0.025)}{7.030} = 346 \text{ feet}$$

and then tune to 3.515 MHz and adjust the wire length slightly until the SWR is minimum there. You must remember to take any extra lead-in wire into account when measuring the kite-supported wire using this method.

For even multiples of ½ wavelength

the situation is more complicated. You might tune to *one-fourth* of the operating frequency if the wire is an *odd* number of full wavelengths long. The name of the game is imagination!

This method becomes less and less effective when large multiples of ¼ wavelength are tuned. The SWR dips become more and more difficult to find because the value does not decrease as much. For an extremely long wire the SWR tends to flatten out at a value of about 3:1 or 4:1.

When very long wires are used, there will be more radiation from the feed line than is the case with wires of ½ wavelength or full wavelength. This is because the resistive impedance becomes progressively lower at greater and greater multiples of ½ wavelength, and the cur-

rent node at the feed point is therefore less and less pronounced. Rarely will you use wires more than about four wavelengths long at 7 MHz, however, so this is not a serious problem.

## Grounds

For any end-fed antenna a ground is needed. For Zepp-fed wires the ground need not be especially extensive. However, it is always beneficial. A good ground will serve to keep RF out of the shack, as well as help with your peace of mind. You might have other antennas that you use when there is no wind, and these antennas might require a good ground.

You may run one or more quarter-wavelength wires from the chassis of the antenna tuner outward, either on the ground, above the ground, or under the ground. There should be at least one quarter-wavelength wire for each band used, according to the formula:

$$L_{\text{feet}} = 240/f$$


$$L_{\text{meters}} = 73.2/f,$$

where *f* is the frequency in megaHertz. For wide bands like 80/75 and 10 meters you might want to have one ground radial for the CW part of the band (for example, tuned to 3.550 MHz) and one for the phone part (say, 3.925 MHz). An example of a system for all MF/HF bands is shown in fig. 3.

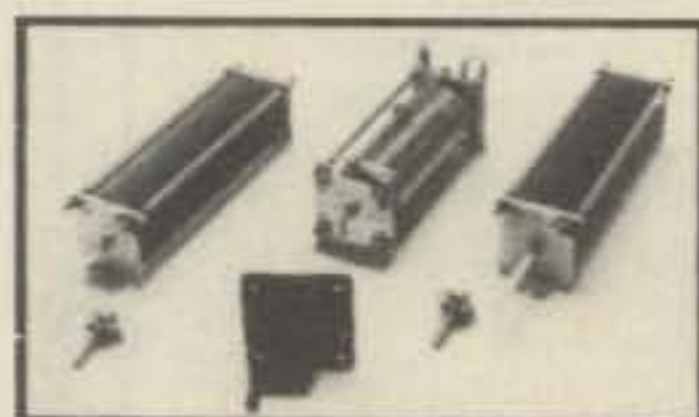
A ground-wire tuner is available (MFJ Enterprises, Inc., Box 494, Mississippi State, MS 39762) that allows any ground to work on almost any frequency. This makes it necessary to have just one radial wire or even a simple water-pipe ground, provided the water pipe really does go to a decent ground. Such a tuner will not substitute for a radial system in the classic sense, but it will work very well for antennas such as this, where the current is relatively low.

You should always have a good direct-current ground for electrical safety, regardless of the RF ground.

The quarter-wave ground wires will serve at the third harmonic, so that the 40 meter wire will work on 15 meters and the 30 meter wire will function near the top end of 10 meters.

If you want really optimum performance from an above-ground wire lead, you can do as I did for 160 and 80 meters. This is getting toward the realm of what might be termed "hard-core antenna fanaticism." I would advise that you not do this unless you really are prepared for the possible progression of the disease called "antenna addiction." You can trim the counterpoise wires by tuning into them as if they were quarter-wave antennas, and prune them for minimum SWR. This ensures maximum current and minimum loss—not just theoretically, but actually, as verified by experiment. 

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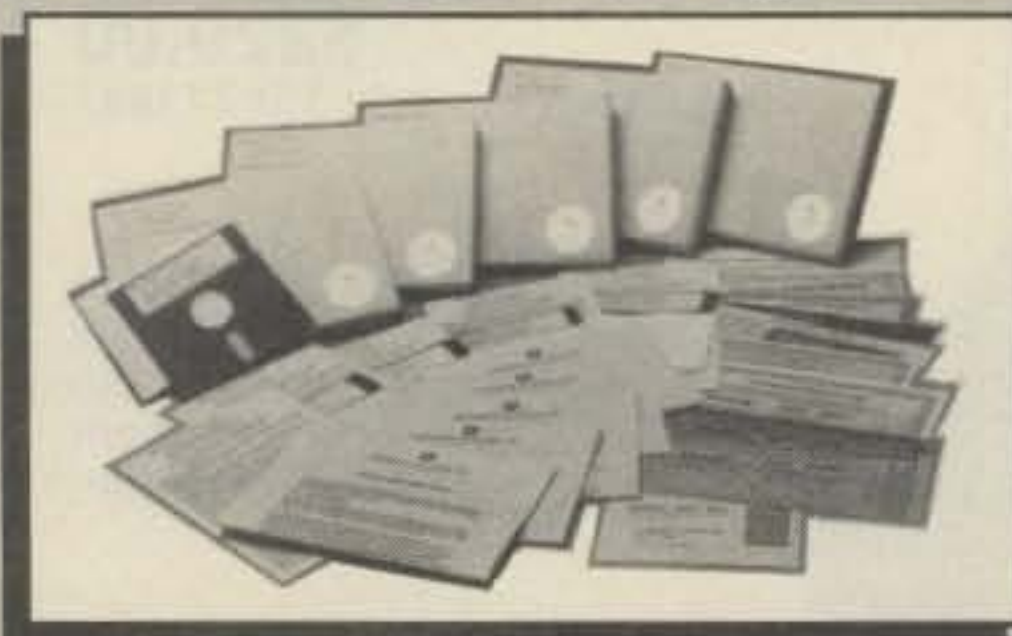
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## Glen Martin Engineering's Hazer Elevator System

BY STEVE WILSON\*, K0JW

**N**ow that is clever! Those were my words when introduced to the Hazer, manufactured by Glen Martin Engineering, Inc. The Hazer is an elevator system on which your antenna and rotor mount, and the complete unit, tram the tower in its normal upright position. This means those of us with fixed tower installations (i.e., Rohn towers that do not tilt over or crank up and down) now have a means of lowering our antennas and rotor for maintenance and adjustments with our feet on good old terra firma. Yes, indeed! That is a big plus for folks who do not or cannot climb for various reasons.

Follow along with us now as we install the Hazer, and we will describe what is involved and how the unit operates. The easiest way to install the Hazer is to mount it on the tower during initial erection. However, it can be mounted on an existing tower at any time, as is the case in this review. We are going to mount the Hazer on a 50 foot Rohn 25 tower supporting a Hy-Gain TH7 antenna and Tail-twister rotor.

Three models of the Hazer are available for Rohn 20 and 25G towers—the Hazer 2, Hazer 3, and Hazer 4. The models vary in that some use steel construction and some use aluminum materials, and the square foot of load rating changes from model to model. The Hazer 8 is also available for Rohn 45 and 55 towers. You can choose the one that best suits your particular needs. The Hazer 4 was selected for this installation. It is constructed of heavy galvanized steel and has a 16 square foot load rating. The Hy-Gain TH7 has a wind surface area of 9.4 square feet.

Looking over the assembly sheet (that's right, one sheet!), we find there are three basic steps involved:

1. Constructing the Hazer around the tower.
2. Fastening the winch on the tower at the appropriate level.
3. Installing the wire rope pulley assembly at the top of the tower, and then installing the wire rope cable.

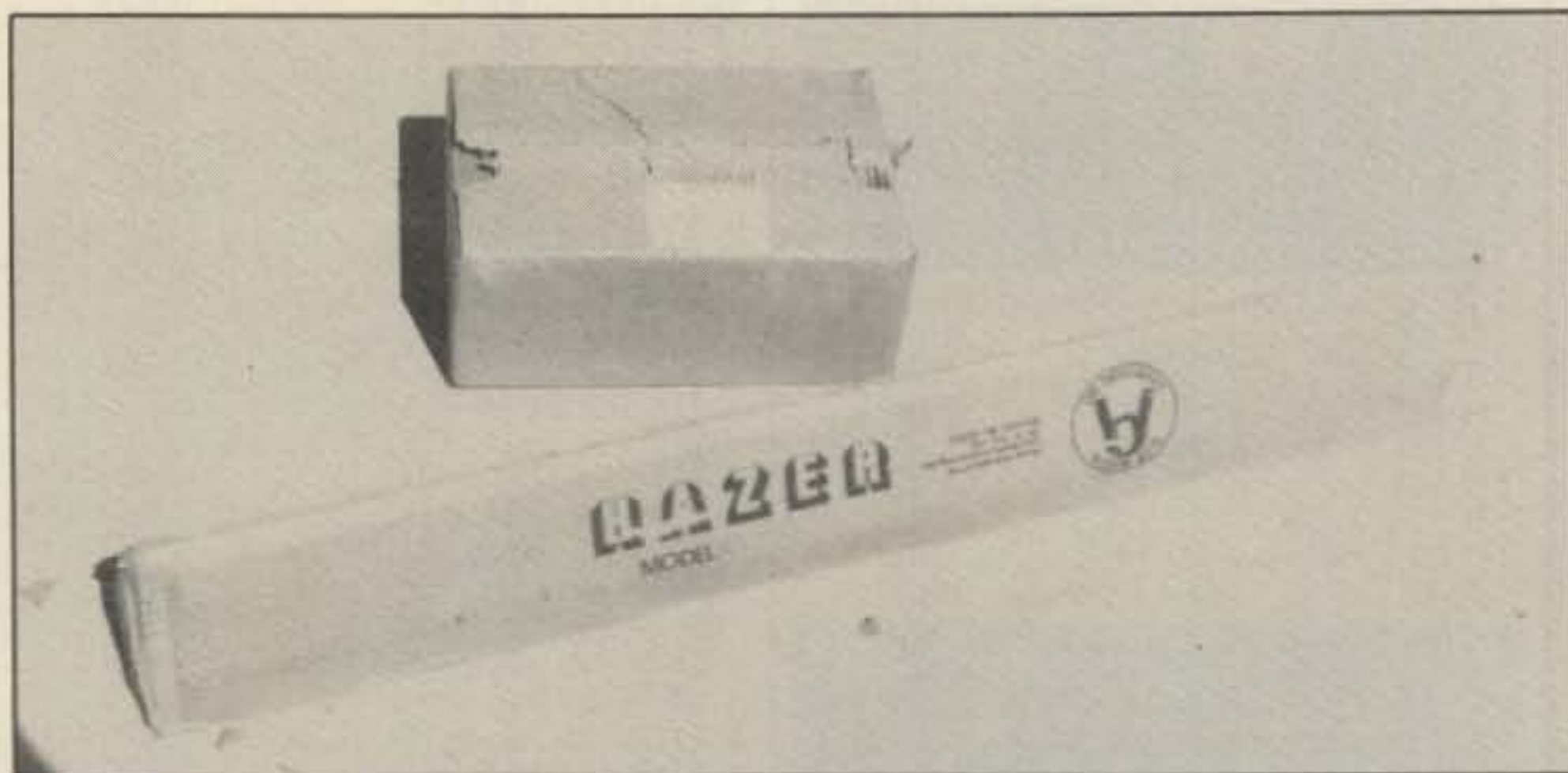


Photo A. The Hazer just as it arrives at your door via UPS.

Photo A shows the Hazer as it arrived via UPS in two cartons. As is advisable when assembling any kind of kit, all parts were carefully unpacked and laid out

(photo B), and then checked against the parts list. Cross-checking in this manner revealed that our Hazer was missing the hardware bag—all the nuts and bolts, etc. The Hazer folks, however, were prompt to rectify the problem. A quick telephone call and three days later the

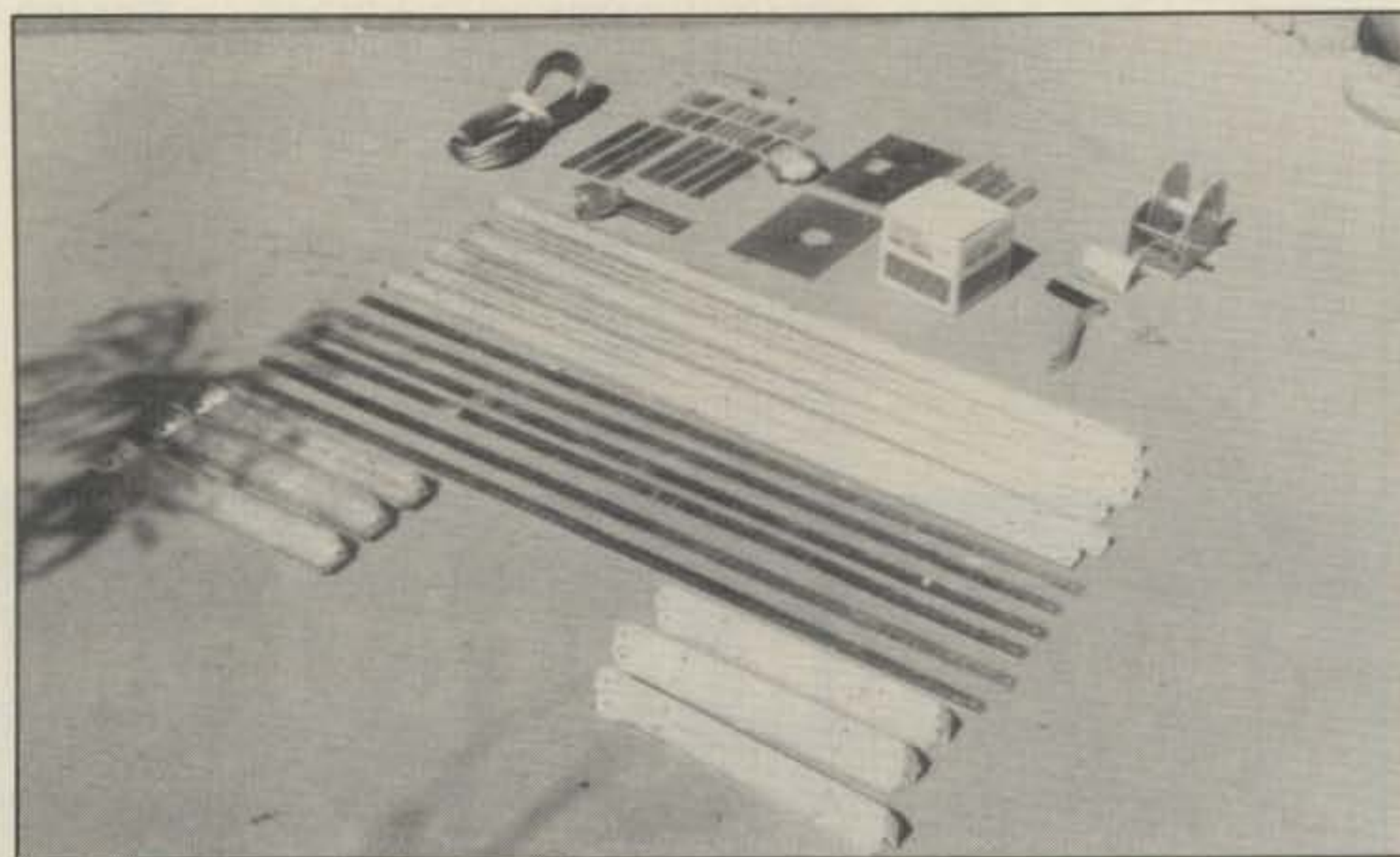


Photo B. All the parts were laid out and carefully checked against the parts list to make sure the installation was trouble-free.

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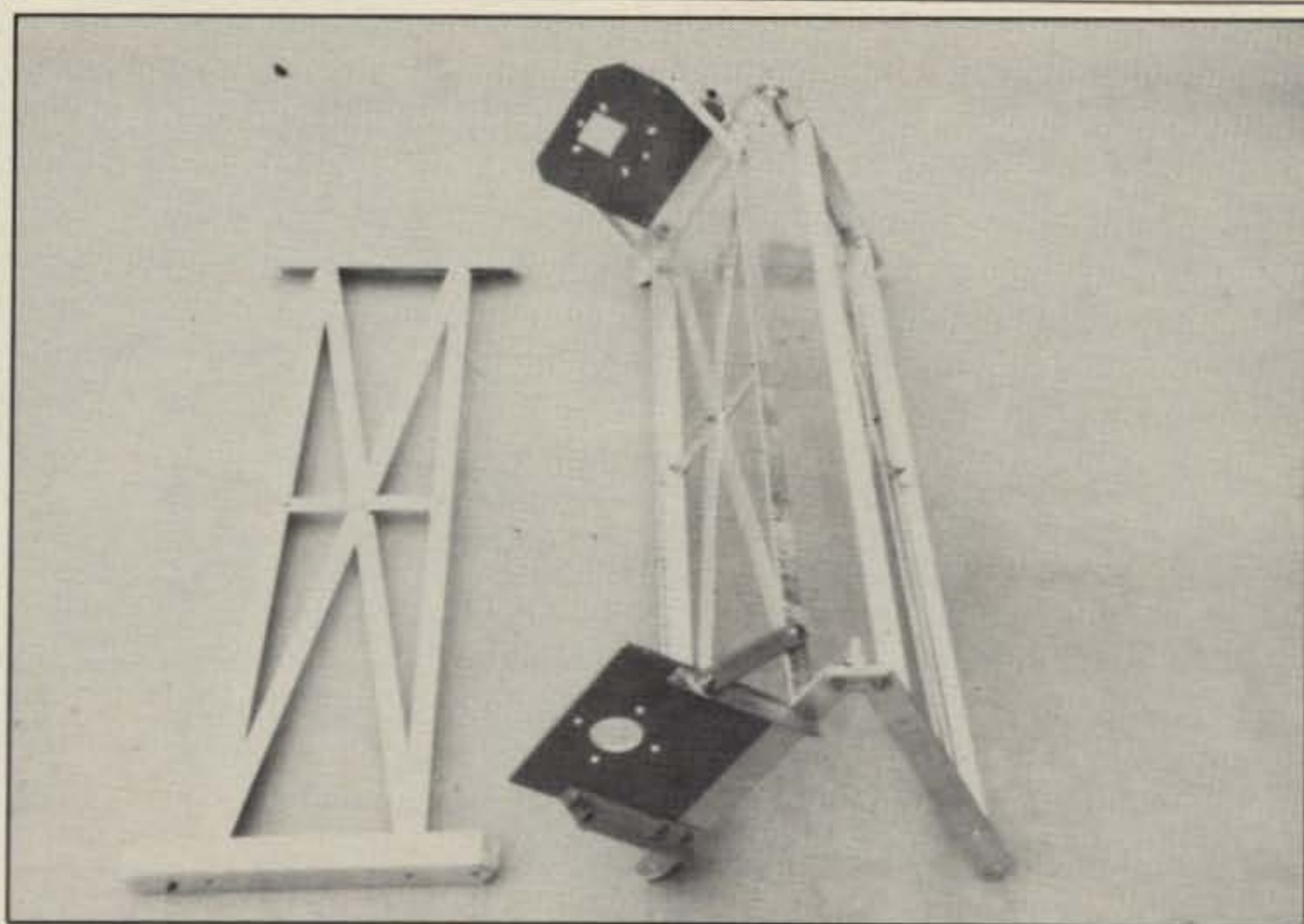


Photo C. After the three sides were assembled, two of them were attached together and the rotor plate and thrust-bearing plate were mounted.

missing hardware arrived via UPS. Fast and efficient!

Now we are ready to begin step one of the assembly. It seemed the easiest way to start was to construct all three sides of the Hazer in my garage out of the direct rays of the sun's 95-degree heat. Construction was straightforward, and the directions sheet had good drawings to eliminate confusion during this stage of assembly. After the three sides were assembled, two of them were attached together as shown in photo C. This phase of

construction went well, and all the holes and hardware lined up and fit perfectly.

At this point we moved the Hazer out to the tower and attached the third side to the assembly, fitting it around the tower. We were careful here to make sure the rotor plate was at the bottom and the thrust bearing plate at the top (photo D). Again, this phase of construction went together perfectly and was accomplished by one person. That completes step one of the process. All nuts and bolts were then checked to be sure they were tight-

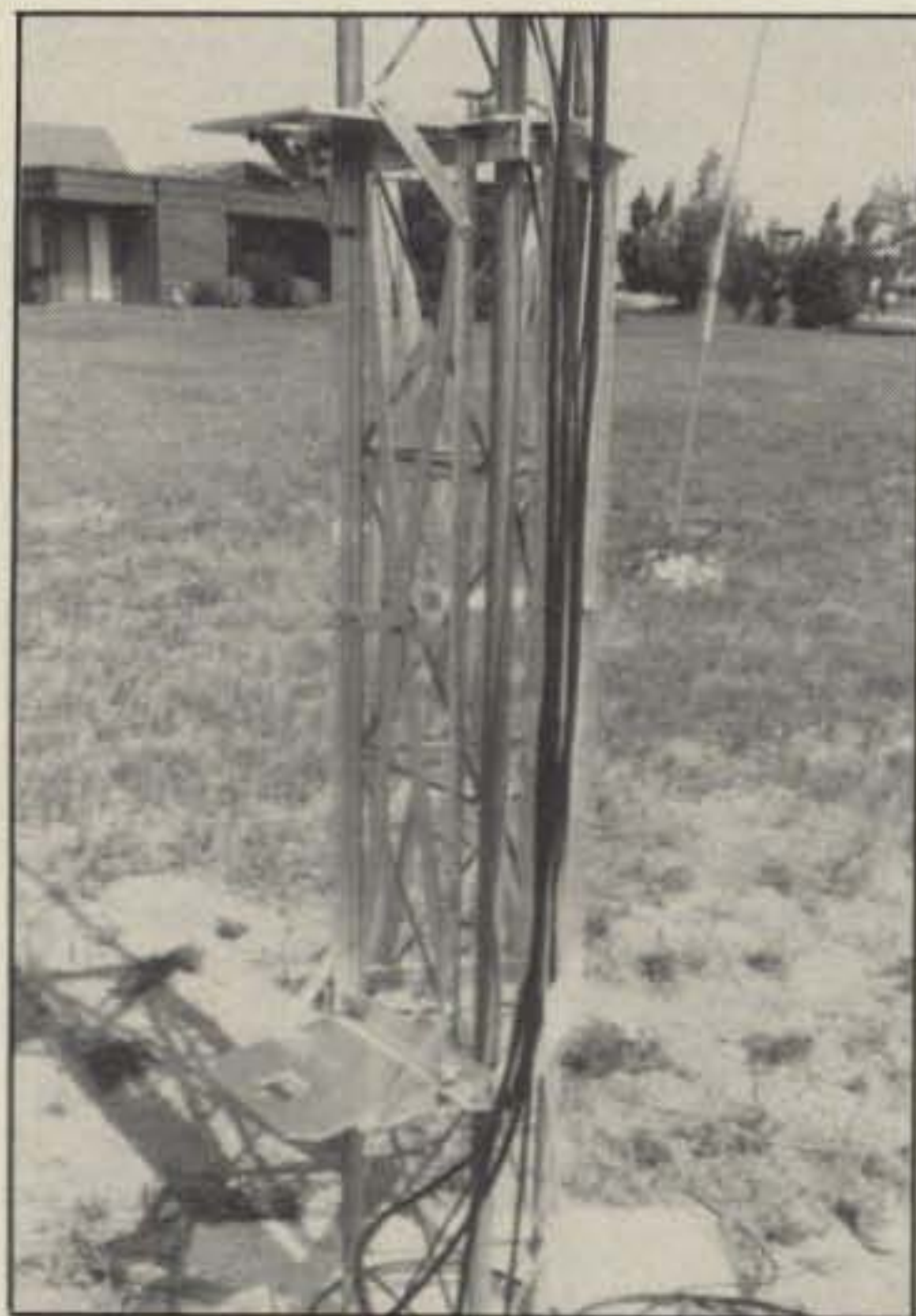


Photo D. The Hazer after it was assembled around the Rohn 25 tower.



Photo E. The winch shown mounted at the lowest point on the tower to allow the Hazer to lower close to the ground.



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ened well. The nuts provided have a center deflected thread to prevent loosening, which is a nice feature.

The winch supplied is of high-quality construction and can be mounted at a spot you find most convenient. I chose to mount the winch at the lowest point possible on the tower (photo E). While this is somewhat inconvenient during the actual process of cranking (I had to get on my knees to do it.), it allows the Hazer to lower closer to the ground and makes the antenna work more easily. The winch is attached to the tower leg with two saddle clamps, preferably to the tower leg opposite the rotor face, but any leg will do. The winch attaches quite securely and is quick and easy to mount. The winch handle can easily be removed when not in use, thus removing any temptation from neighborhood kids to try turning it.

Step three of the assembly is next. As I am not a tower climber by any means (hence my interest in the Hazer), I called upon the able-bodied assistance of Dick Knox, N0JW, a great friend who is always available for my antenna projects. His job was to climb to the top of the tower and mount the wire rope pulley assembly. This can be mounted in two different configurations, depending upon whether your tower has the tapered 25AG top section or just a 25G section on top. Either way is satisfactory and will work well with the Hazer. Next we installed the wire rope



Photo F. K0JW shown mounting the rotor onto the Hazer working at ground level.

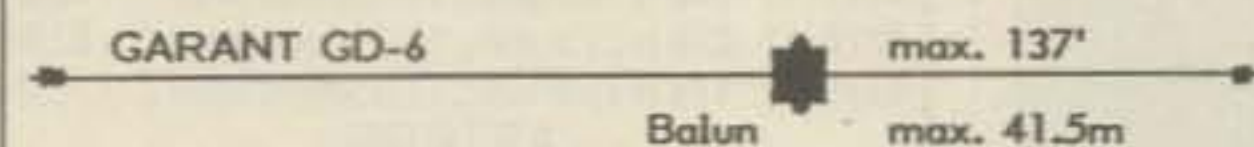
which is threaded through two holes in the Hazer framework, one at the bottom and one at the top, then up the outside of the tower to the pulley, over the pulley, and down the inside of the tower to the winch. This is very simple to do, but we did hit one snag. The two pre-drilled holes in the Hazer framework were too small to

accept the wire rope. This was no major problem, however, and only required drilling them to the proper size.

Now with this much completed we get to see this baby in operation. We wanted to check for smooth operation of the unit up and down the tower before proceeding any further. Our tower is guyed at 20 feet

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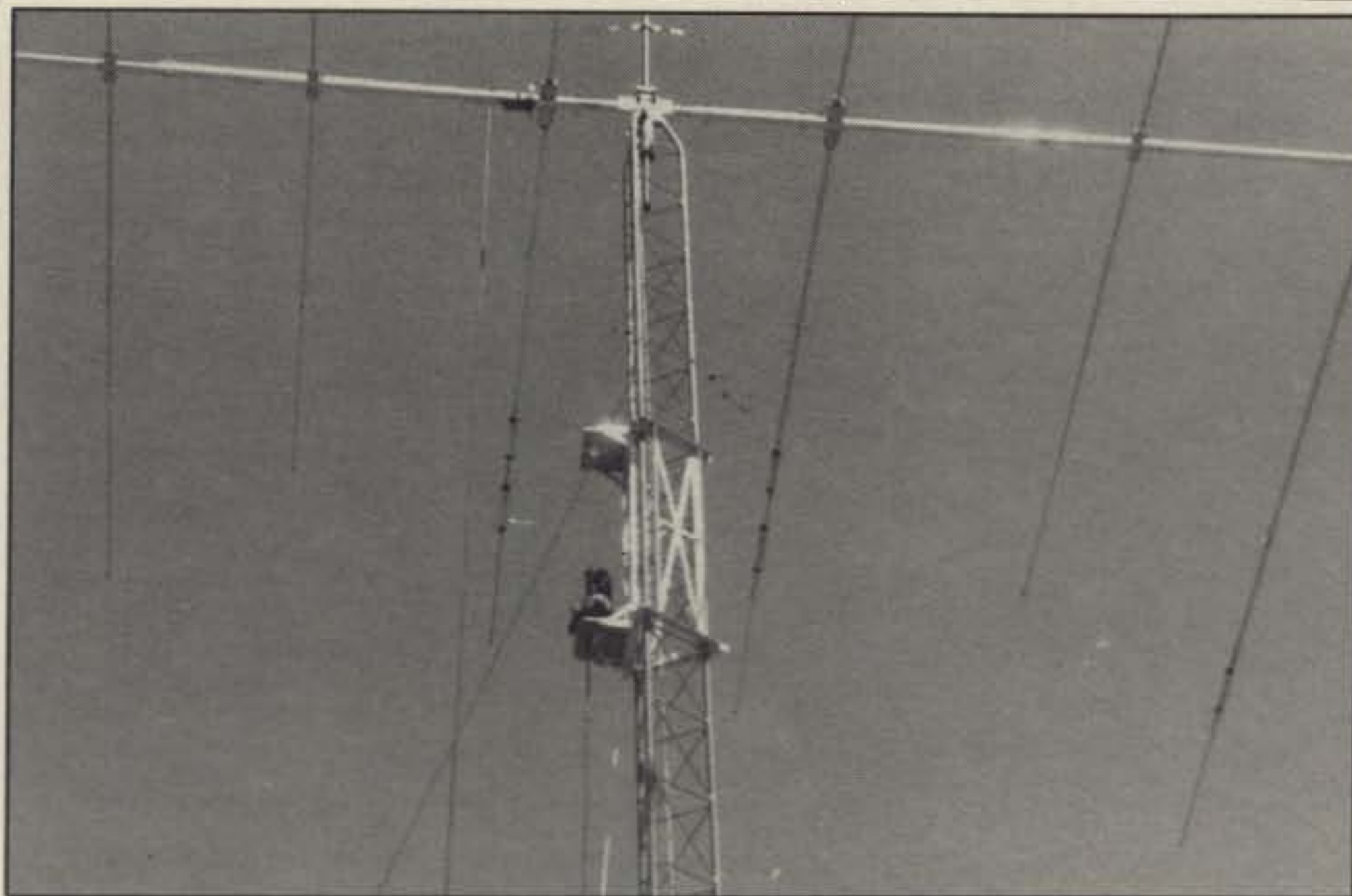


Photo G. The Hazer in position to give the TH7 a piggyback ride down the tower.

and 46 feet, so for this check we dropped the 20 foot level guy wires and cranked the Hazer up to the top set of guy wires and back down again. The Hazer performed as advertised, riding the tower smoothly both up and down. So far so good. By now we were anxious to get the antenna and rotor off the tower and down to the bottom so we could mount them on the Hazer.

We decided to let the Hazer help us lower the antenna, since it was sitting idle on the tower. Using a gin pole we raised the mast of the TH7 out of the rotor just enough to allow removal of the rotor and

the Rohn rotor mounting plate (this item would no longer be used). At ground level the rotor was mounted onto the rotor mounting plate of the Hazer (photo F). The rotor was reconnected electrically and its operation verified before proceeding. Rotor operation was perfect, so we winched the Hazer up just to the top set of guy wires at the 46 foot level (photo G) and verified it locked into place. It was relatively easy then to raise the TH7 up and out of the neck of the Rohn tower (still using the gin pole), gently lowering it into the Hazer (photo H). We then easily dropped the upper guy wires and winched



Photo H. The TH7 resting on the Hazer, allowing easy lowering of the antenna to mount it permanently in place.

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the Hazer (and TH7!) down to the bottom.

It is at this point that you really begin to appreciate the beauty of the system. You see your array coming right down to your lap at the turn of a handle! It was no problem to lift the TH7 out of the Hazer and set it on saw horses for removal of the existing mast. This was necessary because the mast was too short to work with the Hazer due to the distance from the rotor to the thrust bearing. The new mast we chose was 9 feet 8 inches long. Keep in mind every installation is different, and we are merely pointing out what we encountered while doing this review. Mounting the thrust bearing was done next (photo I) just prior to mounting the new mast to the Hazer. The thrust bearing is optional, but I would highly recommend using it if you choose the Hazer for your tower. It is a high-quality bearing and really enhances operation of the system.

The top set of guy wires was permanently attached to guy-wire lugs provided on the Hazer, so when it is winched up or down the guy wires will go right along with it. The lower set of guy wires was reattached to the tower by means of large J hooks for quick and easy removal when we bring down the antenna. Mounting the TH7 to the new mast was the last step before testing operation of the complete system. Getting the big antenna bolted in place and pinned on the mast seemed



Photo I. N@JW mounting the optional thrust bearing onto the Hazer. The bearing significantly enhances operation of the system.

time consuming, but in reality we were just anxious to get it done and see the Hazer perform. Antenna direction was verified as we got it all back together so when the rotor said north the antenna would agree.

All this out of the way, it was finally time to let her fly! We winched it up to about the 26 foot level and locked it in while we attached the lower set of guys and cinched up the turnbuckles. Then we ran the Hazer all the way to the top and attached the upper guy wires (photo J) to the guy posts and cinched up the turnbuckles. Operation was smooth clear to the top. A few 360-degree turns of the rotor showed operation to be even smoother than it was previously. No doubt the thrust bear-

ing was showing its worth here.

Is the Hazer for you? I would recommend you seriously consider its advantages. It is a quality product and an investment in your installation that will make your antenna projects easier and safer. As all antenna systems vary, check with the folks at Glen Martin Engineering to get details on which model will work best for you. Type of tower, tower height, and type of rotor and antenna are all important to specify when ordering. Prices start at \$213 and include shipping to your door. For more information, contact Glen Martin Engineering, Inc., Rt. 3 Box 322, Boonville, MO 65233 (telephone 816-882-2734). Thanks to K4TWJ for advice and editing.

CQ

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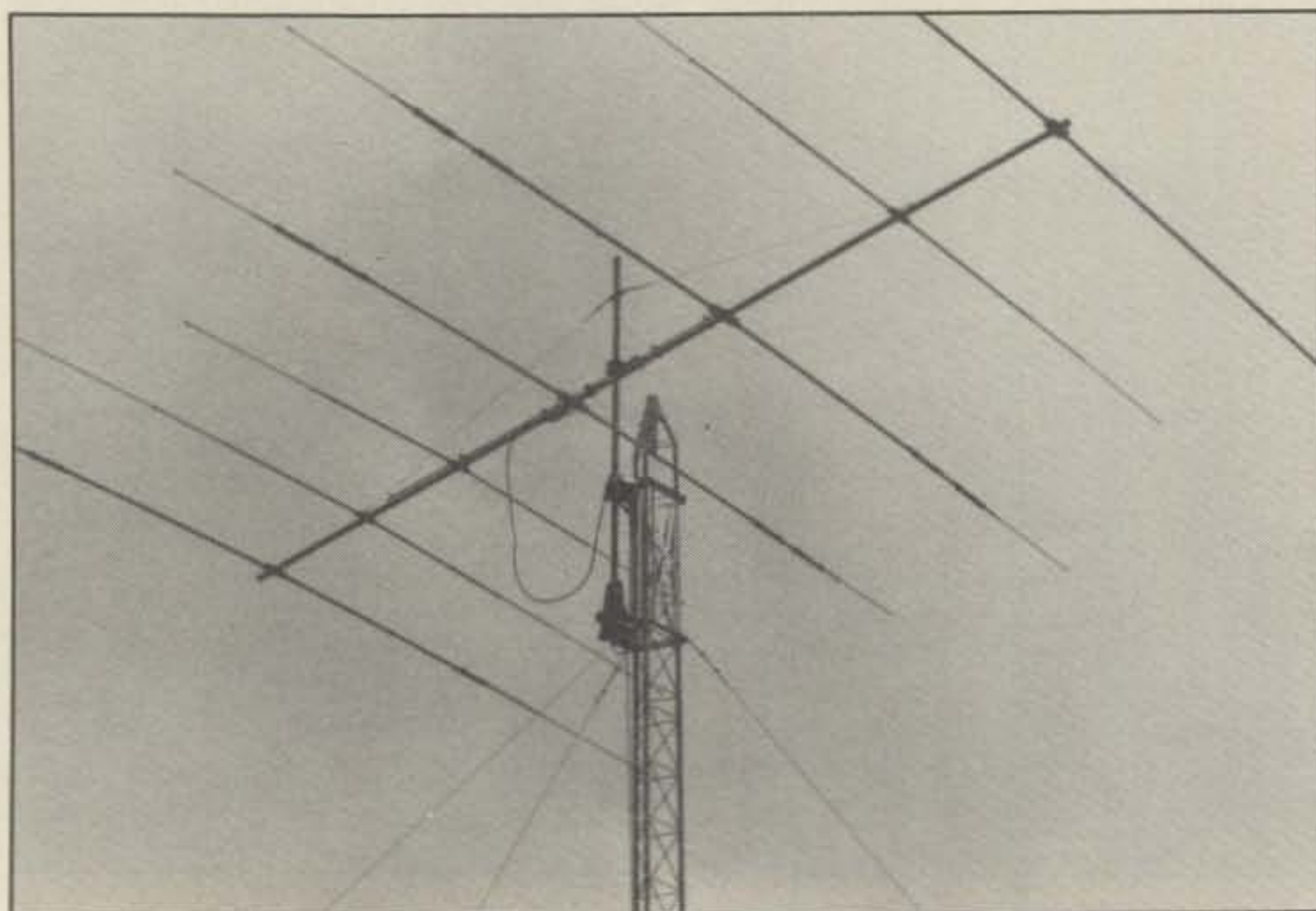


Photo J. The completed installation. Time to grab a cold one and fire up the rig!

CIRCLE 124 ON READER SERVICE CARD



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Uniden Corporation of America has purchased the consumer products line of Regency Electronics Inc. for \$12,000,000. To celebrate this purchase, we're having our largest scanner sale in history! Use the coupon in this ad for big savings. Hurry...offer ends September 30, 1989.

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- Bearcat 100XLT-T .....\$184.95
- Bearcat 800XLT-T .....\$249.95
- Uniden HR2510-T .....\$229.95
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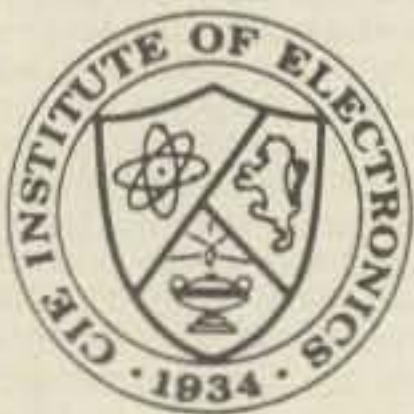
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*Living with an amateur radio operator has both advantages and disadvantages. So says someone who has lived with a hobbyist all her life.*

## Amateur Radio Is Here To Stay

BY DEBBIE FORDHAM\*

**M**y father is an amateur radio operator, as was his father before him. My husband also has his license, so it seems that everywhere I turn, I hear about what a wonderful hobby amateur radio is. I admit that *most* of the time this is probably true.

Growing up as the daughter of a ham had its advantages. The telephone pole my father put up 25 years ago to hold his antennas still stands behind a house we have long since left. It looms above the house and trees, a giant green pillar of ivy. I still remember the "Russian Children's Hours" that I listened to on that antenna, and the many conversations I had with people all over the world under my father's watchful eye. I remember what seemed like row upon row of very neat little boxes covered in dials and knobs, and every Saturday morning being awakened by my father calling "CQ" to friends he had never met located all over the world. I remember learning about the world on the globe which sat on top of his receiver throughout my childhood.

Now I have my own home and my own ham husband. Whenever my husband and I move to a new home, getting up an antenna is a top priority for him. My mother, of course, taught me to lay down the law about where the antenna will be and to approve the design, but David finishes putting it up even before the washer and dryer are working. This, of course, provides us with an excellent opportunity to meet the neighbors. Almost immediately all kinds of interference on everything from television sets to telephones occurs throughout the neighborhood. We react very positively to the neighbors' complaints and immediately go over to check out the problems. Without fail the true culprits have been within the neighbors' own homes. My husband is able to point out and fix the problems, which leaves the neighbors grateful to Dave for fixing their problems, although some give us a "h-r-r-rumph" and never speak to us again, certain that somehow those wires and funny-looking antennas will be a real problem.

We haven't been so lucky with interference in our own home. Here amateur radio is often the culprit when it comes to interference on the telephone, the children's musical toys starting all by themselves, and most recently the garage door going up and down by itself. Oh, well.

At least I know who the guilty party is, and he knows how to fix it.

Someone once said that a boat is a hole in the water where you pour your money. I think that somehow amateur radios must burn money to operate. Dave's latest is a "black box," complete with cables, for \$300. I wish he would have consulted with me first. I would have been happy to take a box and paint it black for far less money than that. It has wires going into it and coming out of it, but even Dave can't explain to me exactly what it does.

I love to buy things on sale and get a good bargain. Then I can spend the money I "saved" on something else. I thought this was a game in which women were the experts, but my husband has picked up my tricks. Now when he says, "Guess how much money I saved today, honey?" I know a groan is in order (and that we'll be eating hot dogs again for the next month!).

On the plus side, though, any hobby can be like that. Any golfer wants to get better clubs, and the green fees are incredible. And it is a plus that Dave can go and enjoy his hobby for a short time and still be around to get my spiders and take out the garbage. Then he can go back to his hobby and I can get back to my work with him out of my way. For us it works out quite nicely.

One time of the year I dread, however, is Field Day. This is his excuse to hide out in his shack for 24 hours, coming out only to take care of the call of nature. Occasionally he runs out, orders a sandwich, and runs back for fear of missing any contacts. This is one time of the year when, I have learned, spiders and garbage have to wait until Field Day is over.

The kids enjoy getting the QSL cards from around the world, and I admit I enjoy it as well. I like to look at the stamps and always try to keep an ear out to see if the OM is talking to someone with an unusual accent. In fact, I bought him a world map for his office and enjoy helping him mark the countries where he has a contact.

You can tell a true ham by how he reads the word "coax." Does this mean some kind of cable, or what I have to do to David to get him out of the shack at night?

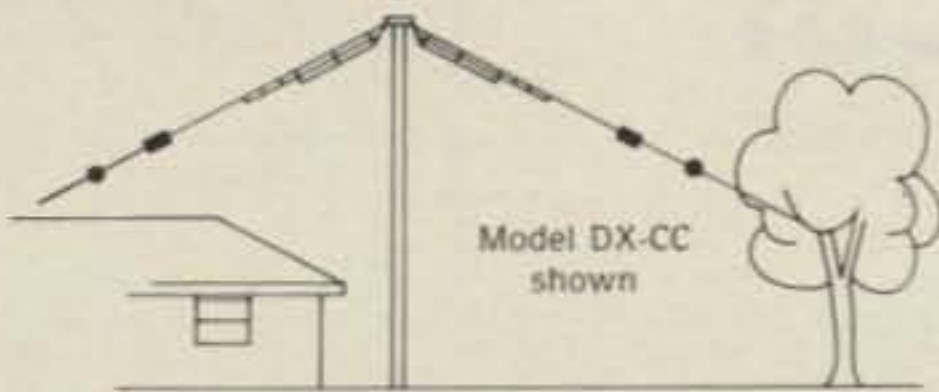
Whether I like it or not, amateur radio is in my home to stay. The four-year-old is being brainwashed while he is young. He already answers the telephone "KD9LA." But as much as I try to convince myself that it is a nice, safe hobby where I can keep my eye on him, I keep wondering one thing: Who are QR Mary and QR Nancy?

\*2663 Andover Rd., Florence, SC 29501



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## The Cushcraft R4 Four-Band Vertical

BY LEW McCOY\*, W1ICP

**T**he Cushcraft R4 vertical is a four-band, electrical half-wavelength on each band. The antenna covers 20, 15, 12, and 10 meters with a very low standing-wave ratio on each band.

I was impressed, as I have always been, by the quality of the workmanship from Cushcraft. While it isn't pertinent to the review, although it is in one way, I have known the Cushmans for years—in fact, since the inception of the company. For many years I was asked by various convention committees to manage antenna forums (including several at Dayton). Invariably, when he was available, I asked Les Cushman (the founder of the company) to be one of my speakers, and you can be sure he drew large crowds. Probably his most popular antenna was, and is, the Ringo Ranger. I guess what I am saying here is that I have always been favorably impressed by the company's products, and certainly this four-band vertical is no exception.

The unit I received for review came via UPS in a single shipping box 4 feet by 8 inches by 5 inches deep. The photograph I took is with the antenna parts laid out on my deck. As per the instructions, I carefully checked the received item to see if everything was there, and it was.

I timed myself carefully to see how long it would take to assemble the antenna (by myself), and it took exactly 1½ hours from opening the box to having the antenna up and playing.

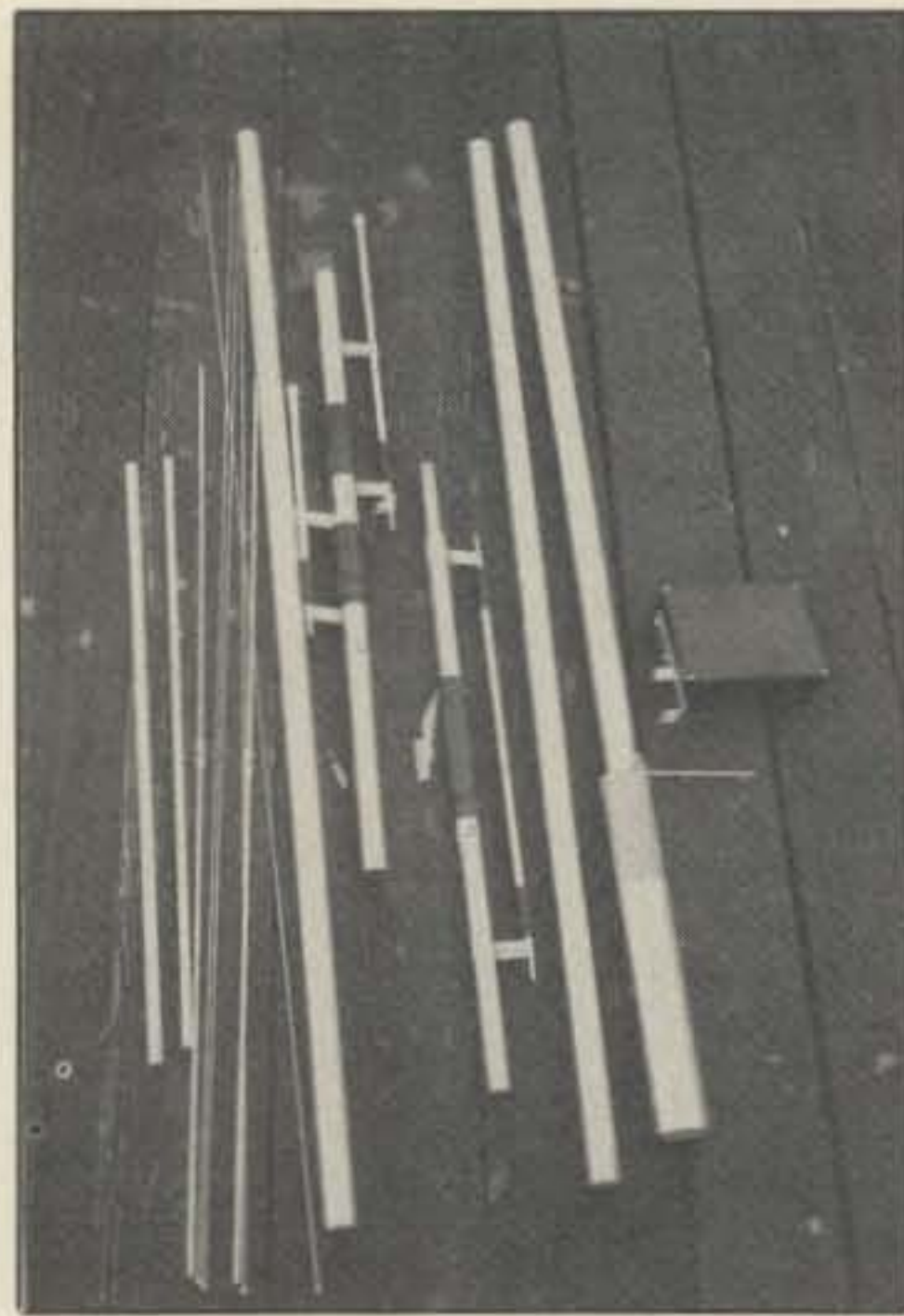
The directions are clear and concise. I started with the base section and worked out from there, laying out the antenna on the deck as I assembled it. I also used the exact dimensions as shown in the instructions, but more on that in a moment.

The completed antenna weighs only 8 pounds (but it is rugged), so I figured it would be simple to raise it into place, which it was. Fig. 1 is the drawing provided by Cushcraft. The vertical utilizes

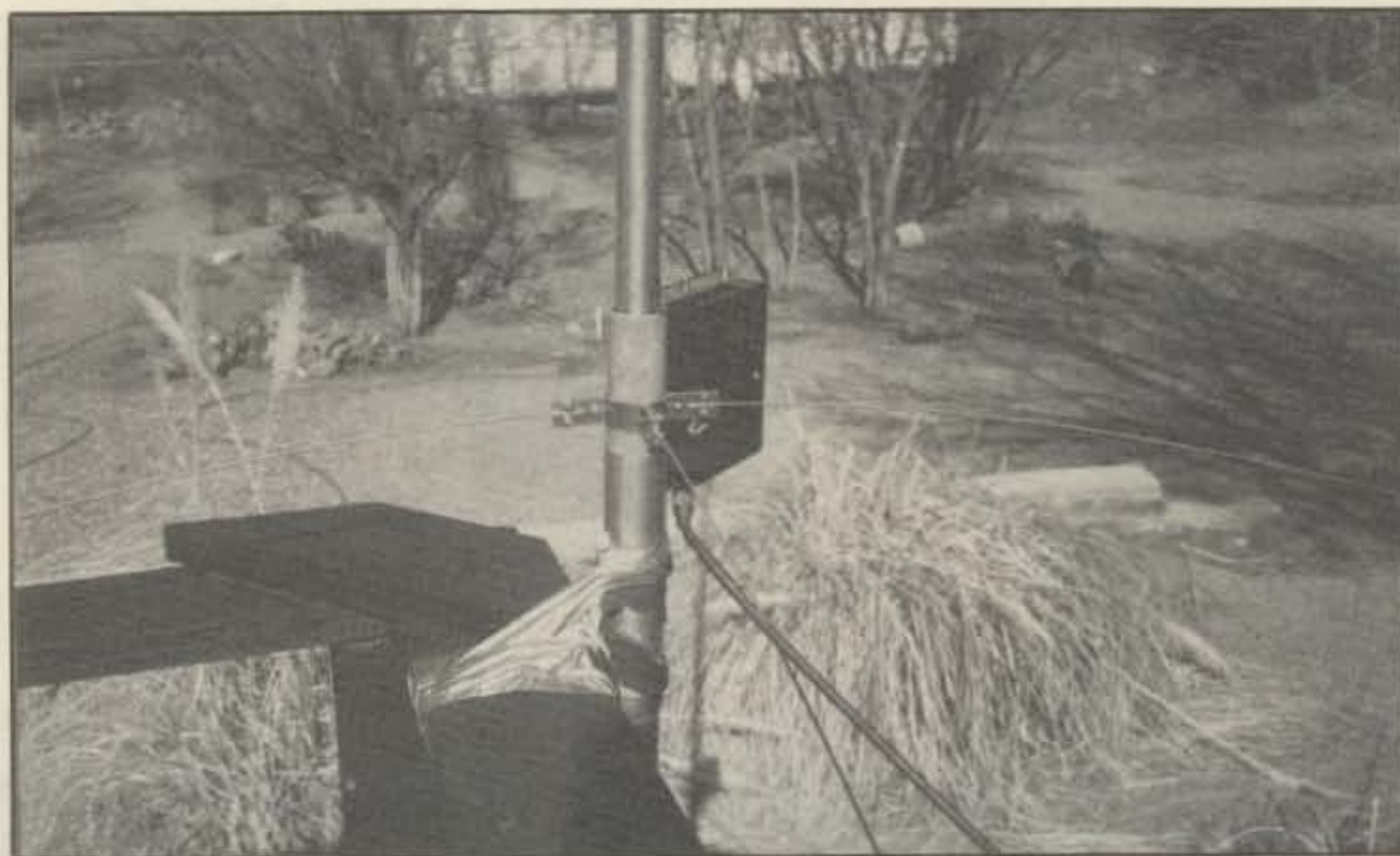
three traps; the first, up from the base, is 10 meters, then 12 meters, and the last, or top, is 15 meters. Base feeding a half-wave vertical provides a very high impedance. Cushcraft takes care of this by use of a toroidal matching system that is encased in a weatherproof plastic box. The feed line should be a good grade of 50 ohm coax. A semi-ground plane is established at the base insulator by the use of four 48 inch long aluminum rods.

The railing of my deck is 15 feet above actual ground, and that is where I mounted the base of the antenna and where I made all my tests. I also have a very good beam on each of the four bands the R4 covers, so I figured it would be a good comparison test antenna for the vertical. The beams are 60 feet above ground, which should have put the vertical at a serious disadvantage. However, my first tests were to compare the bandwidth/SWR curves of the Cushcraft against my vertical installation.

If you note the Cushcraft curve for 10 meters, the SWR is less than 2 to 1 across



*With exception of the bag of hardware, this is the complete antenna.*



*This is the base mount which fits over a supporting pipe. There are four 4 foot radials at this point. Also, the matching transformer is visible towards the rear. My "temporary" mount to the deck is via duct tape, as you can see.*

Technical Editor, CQ, 200 Idaho St.,  
Silver City, NM 88061



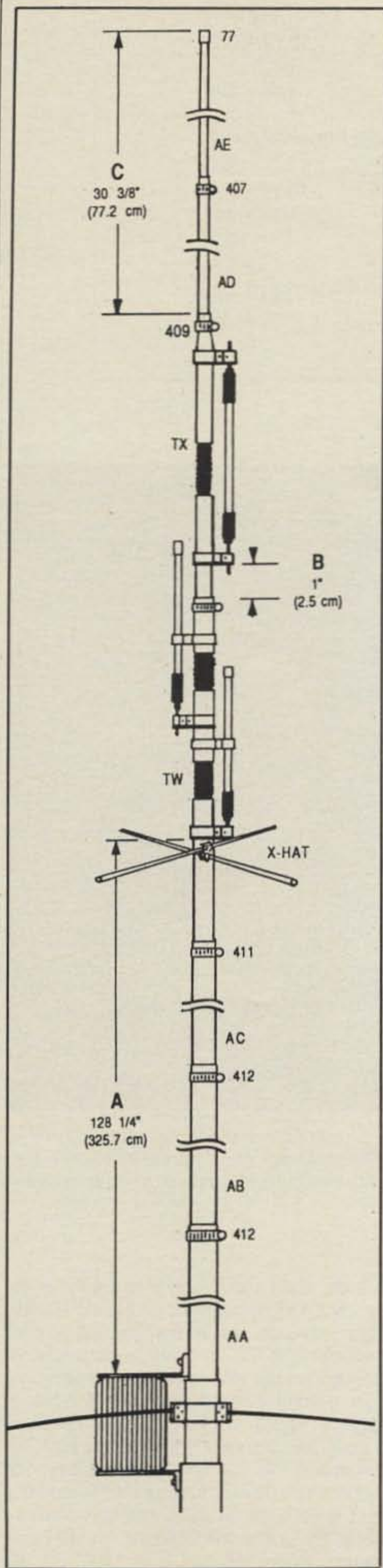


Fig. 1 - Overall view of the R4.

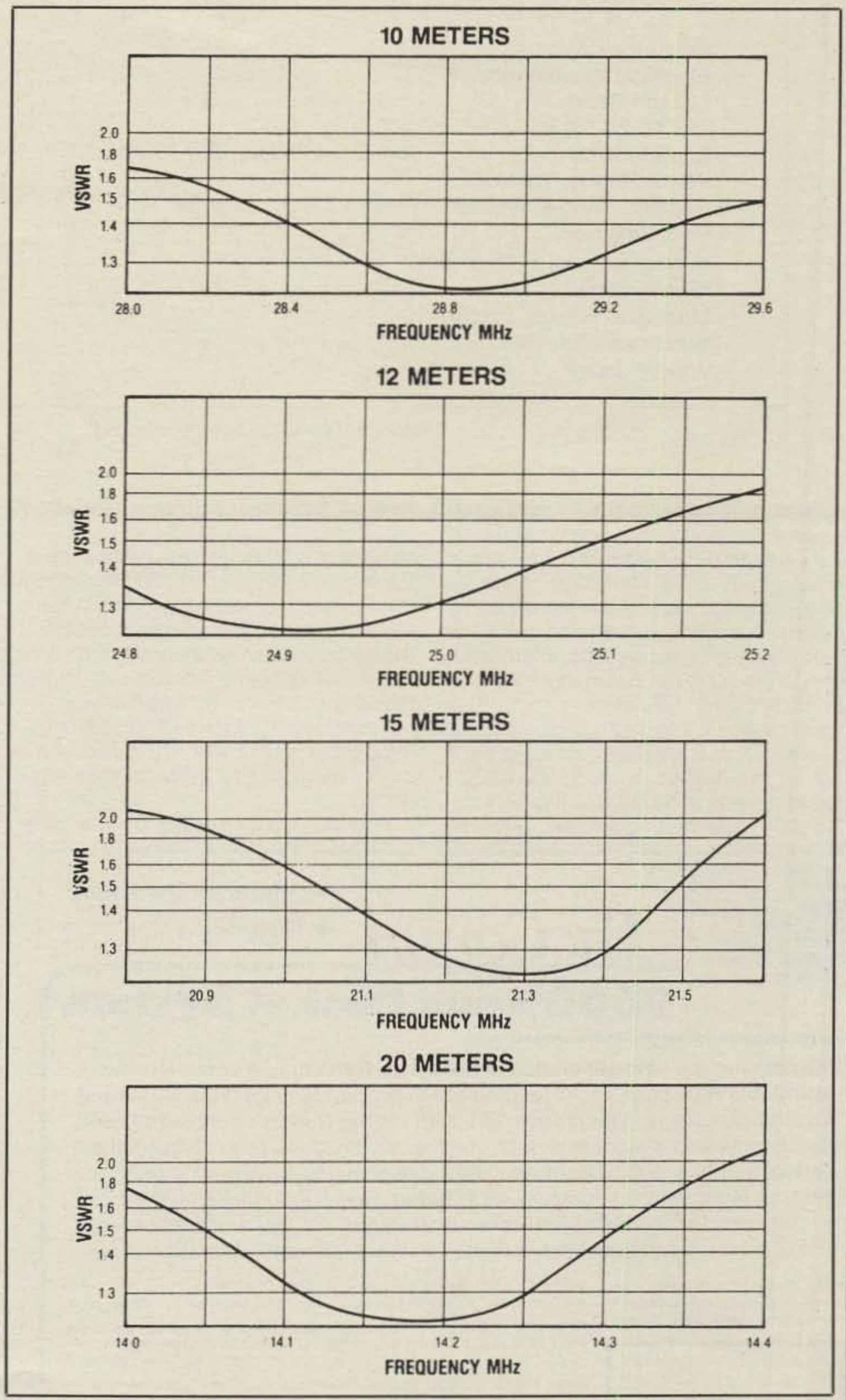


Fig. 2 - SWR curves specified by the manufacturer.

the entire band. My tests indicated slightly more than 2 to 1 at the low end (28,000 kHz), rising to above 3 to 1 at the top band (29.7). Cushcraft provides simple adjustment procedures for just such problems, but before adjusting I decided to make bandwidth runs on the other bands. I could just as well have saved the effort. In every case the SWR on my vertical was

better than the Cushcraft figures. In fact, 20 meters was less than 1.3 to 1 across the entire band. Therefore, following the directions, I shortened the first section above the base to bring 10 meters more into line. Cushcraft suggests 1 inch at a time, and I found that it took 2 inches of shortening to achieve their curve.

It has been some time since I have



## SPECIFICATIONS

### R4

Frequency, Meters	10,12,15,20
Electrical Wavelength	
Each Band	Half-wave
SWR 1.2:1 Typical	
2.1 Bandwidth	10m-2.0-1.7MHz, 12m-100KHz, 15m-450KHz, 20m-350KHz
Power Rating, Watts PEP	1800
Radiation Angle, Typical	At Horizon
Freq Selection	Automatic
Horizontal Rad. Pattern Deg.	360°
Height, ft(m)	18(5.5)
Mast Size Range, In.(cm)	1.5-1.75(3.8-4.4)
Wind Load, ft <sup>2</sup> (m <sup>2</sup> )	1.4(.13)
Weight, lb(kg)	8(3.7)

*Table 1- Technical specifications of the R4.*

used vertical antennas, so I was interested in what would happen comparing the vertical to my beams. My receiver is carefully set up, so it is easy to relate decibels of gain or loss. I started out on 20 meters and checked a W8 who was S8 to 9 on my beam. I got a shock when I switched to the vertical, because he jumped to slightly over S9! I then carefully rotated the beam and measured him again, but the vertical was still just as good, if not slightly better. In my tests on 20 I found several instances of this, indicating that I was getting a better received

angle off the vertical. However, to be honest, in most cases the beam came out about 6 to 8 dB better, as it should have. Believe it or not, transmitting was about the same story. I was becoming more and more impressed with the performance of the vertical. After all, it only took an hour and a half to put up the vertical, while it took days for the tower and the beam.

I used the common A-B tests. Not telling people what I was using and with a coax switch, it was easy to make such tests.

I found similar results on the other



*I couldn't resist using this shot of the R4. The sun "hit" the antenna just below the trap assemblies. I guess this makes this a "hot" antenna.*

bands, and I also found that the R4 is already a popular antenna on 12 and 10 meters. I wouldn't for a moment hesitate to recommend the vertical, particularly to someone with limited space or someone just getting started. Old timers have a saying about receivers or antennas: "Does it listen good?" Let me say that the R4 is a "hot" listener. I worked over 30 countries in two mornings on 15 and 10.

The R4 lists for \$300 and is manufactured by Cushcraft Corporation, 48 Perimeter Road, Manchester, NH 03108 (603-627-7877).



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***W4FA prepared this outline material for a short radio club talk. It summarizes a lot of practical experience John has had with antenna tuners and newcomers, especially, might find it informative.***

## **Some General Do's And Don'ts Regarding Antenna Tuners**

BY JOHN J. SCHULTZ\*, W4FA/SV0DX

**P**ractically since the beginning of amateur radio, various forms of antenna tuners have come and gone along with various opinions as to their value in a station installation. Here are a few observations I would offer concerning the practical use of antenna tuners as based upon my experiences over the years:

1. Don't use an antenna tuner to "hide" a poorly dimensioned or improperly constructed antenna just so one can get a transmitter to put out its rated power. If a dipole antenna, for instance, has been dimensioned according to a handbook formula and erected reasonably in the clear but still produces an absurd SWR at the transmitter end of the feedline (e.g., 1:5 at what should be the antenna's resonant frequency) one should investigate what is wrong and not simply use an antenna tuner to force power into the transmission line/antenna system. The same is true for beam antennas if the SWR curves that are obtained differ significantly from the "typical" ones supplied by the beam's manufacturer. If one dimensioned some of the beam's element lengths incorrectly, not only might the SWR values be wrong but other operating parameters for the beam, such as gain and/or front-to-back ratio, may be incorrect and one might not obtain the full performance anticipated out of the antenna.

2. Don't waste power in an antenna tuner when using a random length wire antenna, if it can be avoided. The idea here is that it is fairly easy to load into even a short length of wire on the low frequency bands using a modern-day tuner. And, it is understood that many amateurs have restricted antenna space and are happy to be able to couple into almost any sort of random wire antenna to radiate some signal on the lower frequency bands. But, the shorter the length of wire, the greater the proportion of the transmitter output power that will be dissipated in

the antenna tuner rather than radiated by the wire antenna. Of course, how and where the output power will be divided up depends enormously on the specifics of an antenna installation. But, the general rule I think is still valid that if one has to use a random length wire antenna on 160/80/40 meters even with all sorts of twists and turns, it is better to get more wire "out there" than to use a short length of wire which happens to make for a neat looking installation. This assumes that the wire length involved for the "neat" looking installation is less than  $1/8\lambda$  to  $1/4\lambda$  long on the lowest frequency band.

3. On the other hand, do be kind to your antenna tuner when using a random length wire antenna. If a random length wire antenna is  $1/2\lambda$  long, or a multiple thereof, on the frequency on which it is being used, it means a voltage maximum appears at the tuner's antenna terminal. Depending on the power level being used and the component ratings used in the tuner, many tuners might well be able to handle the situation but, still, why tempt your tuner to arc over internally? It would be better to adjust the wire length a bit so one moves towards a voltage minimum at the tuner's antenna terminal. Although the twists and turns that a wire antenna can take might throw things off a bit, one can still use the standard antenna length formulas to estimate if a given length of antenna wire will result in a  $1/2\lambda$  situation.

4. Do use a good ground with an antenna tuner. Even if the antenna being used does not "work against ground" (e.g., a regular  $1/2\lambda$  dipole), tuners generally can be adjusted more smoothly when a good ground is used and the ground offers all sorts of protection for the station and its equipment.

5. Don't rely on a tuner alone if your station really needs a low-pass filter because of TVI type problems. It is true that some tuner networks can offer from 10 to 30 dB of harmonic attenuation under certain conditions. But, the amount of atten-

uation can vary enormously from band to band and with different antenna loads. In many cases, the amount of attenuation achieved can be insignificant.

6. Be aware that some tuner networks can show false resonances. One can sometimes obtain several different sets of control settings on a tuner such that a perfect 1:1 SWR is effected at the transmitter's output terminal. But, that doesn't mean that each set of control settings is usable. In an extreme situation, a given set of control settings might result in almost all of the transmitter power being "dumped" into the inductor in a tuner. This sort of situation does not happen all that frequently that one should be unduly concerned. But, if one notices that the inductor in a tuner is running a bit warm as indicated perhaps by cabinet heat, one should be aware that something may be wrong. In general, tuner settings should be used such that the minimum amount of inductance is used to have the system tune up properly.

7. Don't expect too much out of the "automatic antenna tuners" in the newer transceivers. Such tuners are meant to accommodate only moderate SWR situations such as 1:3 or, at most, 1:5. It is the sort of SWR situation one encounters frequently when a dipole or some beams are used at band edges. Under such conditions, the automatic tuners can often do an excellent job of matching. But, they will not load into many random length wire antennas or loads such as dipoles being used on bands other than which the dipole was dimensioned for. If such tuners are grossly mistreated, their internal components can readily arc over or burn up. Just by the nature of their compact size, the components used in such tuners cannot be "jumbo" size.

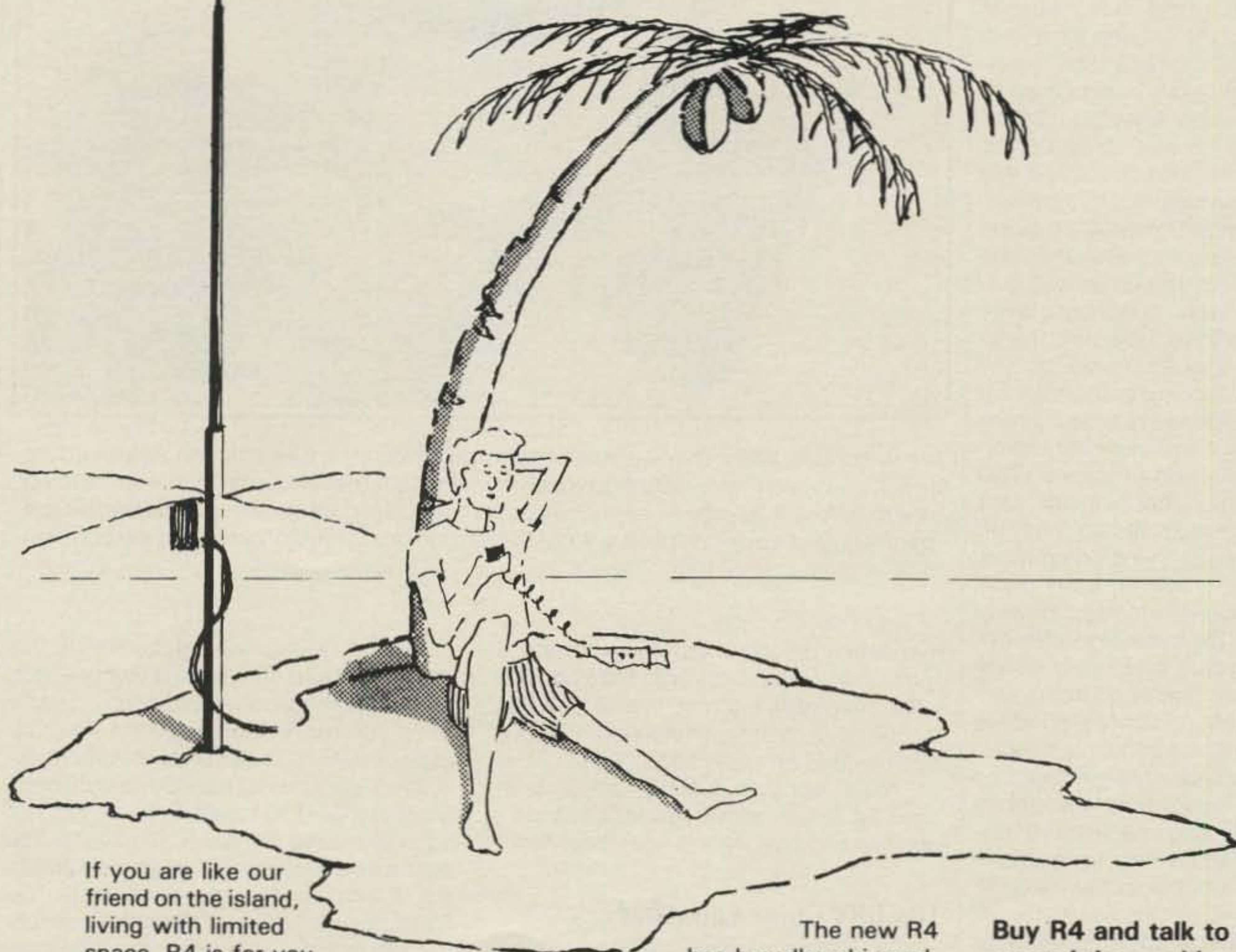
Please note that the foregoing was not meant to be a technical discussion of any sort. The idea was just to present some reasonably practical hints about using antenna tuners. I hope that they prove useful.

\*c/o CQ Magazine



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# CQ REVIEWS:

## Some Signal-Radiating Treats From Antennas West

BY DAVE INGRAM\*, K4TWJ

If you live in an area that restricts large outdoor antennas or simply enjoy pursuing amateur radio on a limited budget, Antennas West is a good name to remember. This relatively small company manufactures a wide variety of high-performance wire antennas that are unobtrusive, easy to install, and reasonable in cost. Whether you are looking for a new antenna to join WARC-band action, an all-band doublet for field-day use, or a quick launcher for installing skywires, Antennas West has the answer. In fact, their neat "QRV Quick Launch" package was the item that initially sparked this review.

A couple of new antennas were going up and my old rubber-mallet-and-rope scheme for lassoing tree limbs was getting worse by the day. Neighbors were convinced a cross-eyed Indian with hallucinations of flying buffalo was on the loose. They continuously gathered their kids and dogs inside every time I paced the yard. A change was definitely in order. I briefly telephoned Antennas West to order a Quick Launcher package. One discussion of antennas led to another, and I could not resist trying some more neat skywires. UPS delivered my package of goodies soon thereafter. Several of those items are the focus of this review.

Like many of you, I previously visualized wire antennas mainly as items self-constructed from hamfest-obtained parts rather than being conveniently pre-assembled. The classic adage of getting what you pay for, however, is most apparent in those cases. Coax cable has a general lifespan of 7 to 8 years, for example (and that also includes coax baluns or RF chokes), and aging begins soon after its date of manufacture rather than your time of installation. Dealers handling the greatest volume of coax naturally have the freshest stock.

Antennas West not only rates favorably in fresh coax, but their use of top-grade components is quite admirable. Their wire is heavy yet flexible, and is covered with a tough and slippery insulation



The Antennas West Quick Launch package. Projectile has snap-on safety cover, launch line is very lightweight, and use of the bucket prevents snags. The extra roll of UV-proof double dacron line snuck into the photo during my antenna installation escapes (this is an action photo). Note the manual and spare projectile in the bucket.

that defies kinking or catching in trees. It is much easier to work with than copper-weld. Heat-shrink tubing is also used on junctions, and teflon-insulated PL-259s are included on cable ends. Nice!

That's enough K4TWJ philosophy. Now let's talk about Antennas West's goodies and how they fit your lifestyle.

### The QRV Quick Launcher

Antennas West Quick Launch package is shown in the accompanying photo. It consists of two heavy round weights and a tennis-ball-type safety cover for throwing over tall tree limbs, two 100-foot rolls of lightweight snarl-proof launch line, a 200-foot roll of UV-proof double dacron line, and a special storage bucket that's also used during the launch process. A quite detailed 28-page booklet on using the launcher and installing antennas is also included in the package. Basically, the Quick Launcher is used as follows.

You carry the package/bucket to the installation site and make a few practice throws without line attached. That's when you really appreciate the weight's safety cover. You can throw it without excessive worry about banged cars, broken windows, and cracked fences. Do not misunderstand my description here: **You must always exercise caution with any projectile.** No one is exempt from accidents. The Quick Launcher's safety cover simply minimizes risks. It hit my fence and storage building several times, and "thudded off" just like a regular tennis ball.

After acquiring expertise with the projectile, the launch bucket is placed between you and the selected tree and its line is tied to the weight. When you throw that weight, the launch line is pulled from the bucket. You then tie the antenna's pullup line to the launch line, move to the "weight end," and draw the launch line back into the bucket for reuse. That procedure may seem similar to usual tech-

\*Eastwood Village No. 1201 So., Rt. 11, Box 499, Birmingham, AL 35210





Two Sparky half-wave wire verticals. The 12 meter version on the left was unwrapped and installed immediately after I shot this photo. The 10 meter Sparky on the right was removed from use for this picture. Both antennas work great.

niques, but Antennas West's snarl-proof line and special bucket literally eliminate unavoidable kinks that always foil the most diligent efforts. The usual height you can achieve using the weight and cover is 30 to 40 feet, but Antennas West's booklet also explains how to increase that throwing height to 80 or 90 feet.

I personally think the Quick Launcher is great. Its weight and safety cover handle much better than hatchets—err, mallets—and everything stores in the bucket for easy use.

### The Sparky J Rollup Wire Vertical

Look closely at Antennas West's ads, and you will notice they make a group of flexible wire verticals for operation on each band from 20 meters through 70 cm. These gain-type antennas consist of a  $\frac{1}{2}$ -wavelength vertical radiator connected to a  $\frac{1}{4}$ -wave matching section that, in turn, is end-fed via an integral length of low-loss coax. If you are visualizing installation heights, a 10 meter Sparky is roughly 24 feet tall/long, a 12 meter version is 26 feet, and a 20 meter Sparky is approximately 50 feet long. The main radiating section is also uppermost rather than near the ground, a shortcoming of most multiband verticals (their radiation is blocked by nearby objects).

The Sparky antennas are sold preassembled and ready to use, and their modified J-pole design does not require a ground connection for operation. You merely toss a light rope tied to the antenna's upper insulator over a tree limb, pull up the antenna to full length, connect its

coax to your rig, and get on the air. Ten minutes from carton to contact. It's that easy.

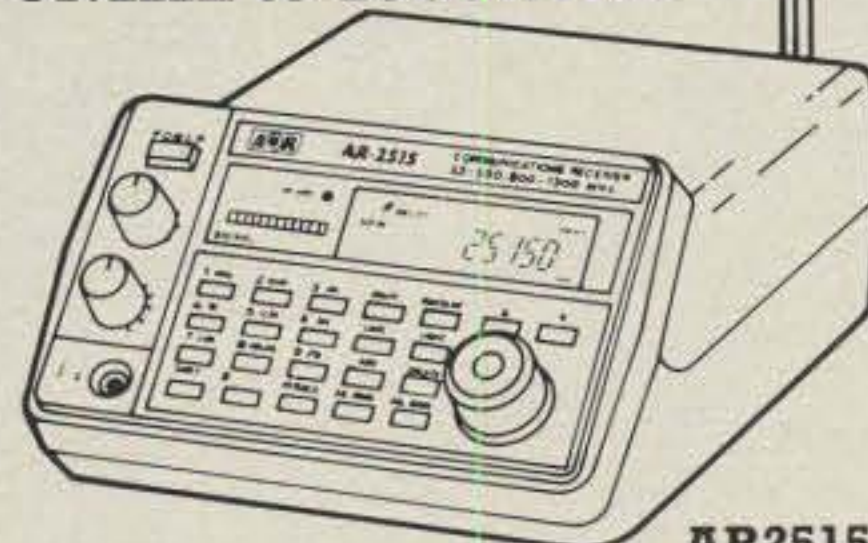
Two Sparky Js are shown in one of the photos. The left one is a lightweight kilowatt version for 12 meters ready to be opened and installed (a quick way to join WARC-band action, eh?). The right Sparky is a hefty 3 kw version for 10 meters that I removed from its "tree home" for this photo. The top wire of each antenna includes an adjustable loop for frequency tuning, but they are quite broadband and resetting is not really necessary. My 12 meter Sparky's SWR is only 1.2 to 1 across the full band, and the 10 meter Sparky's SWR is less than 1.5 to 1 from 28.1 to 28.9 MHz.

On-the-air performance of each Sparky antenna is very good. The 10 meter version works noticeably better than my ground-mounted multiband vertical, but it is not equivalent to my three-element tri-band beam. More specifically, I can hear and work stations slightly better with the Sparky than "off the beam's back." Those same stations reported a drop of at least two to three S units when I switched to the multiband vertical (some of them flat lost me!). Stations likewise reported an increase of two to four S units when my beam was used and pointed directly at them.

As an evaluation for our Novice/Technician readers, I used the Sparky with my 10 meter Uniden 25 watt transceiver for DXing. Several Europeans were contacted right off the bat—no problem! Later that afternoon I worked over a dozen JAs and VKs. (Understand that I do not live on

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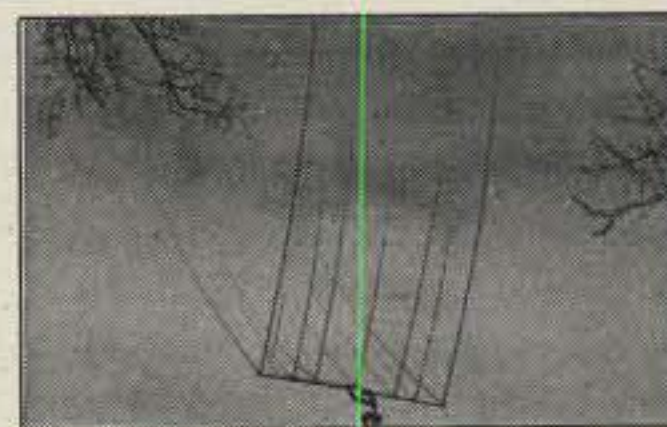
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This photo of the packaged HalfSquare antenna was also shot only minutes before installation. The skywire proved to be very good for long-haul DXing.

a mountaintop retreat. My QTH is a flat-ground neighborhood complete with nearby houses, cars, and trees.) If I can do it, so can you!

Overall, the Sparky is a low-profile and sharp-performing antenna you can install almost anywhere. It can be hung from a motel window or balcony, sloped to a tree, or even hidden inside a PVC pipe used to support a flag on your porch. You will really like the Sparky if you do not have a beam for direct side-by-side comparisons. My 12 meter version could only be compared with a  $\frac{1}{4}$ -wave ground-mounted vertical, for example, and the Sparky was significantly better. I am not convinced the Sparky is the greatest

thing since sliced bread, but it will make me think long and hard before using another ground-mounted vertical. The Sparky is an impressive antenna!

### The QRV HalfSquare Antenna

Antennas West refers to this skywire as a good choice for long-haul DXing when a tower and beam are not feasible, and that description seems pretty much on target. The antenna, shown packaged in the photo and outlined in fig. 1, consists of two vertical wire radiators separated and connected by a half-wave "open-air" phasing line. It requires two supports similar to a dipole, but its performance and radiation patterns are quite different.

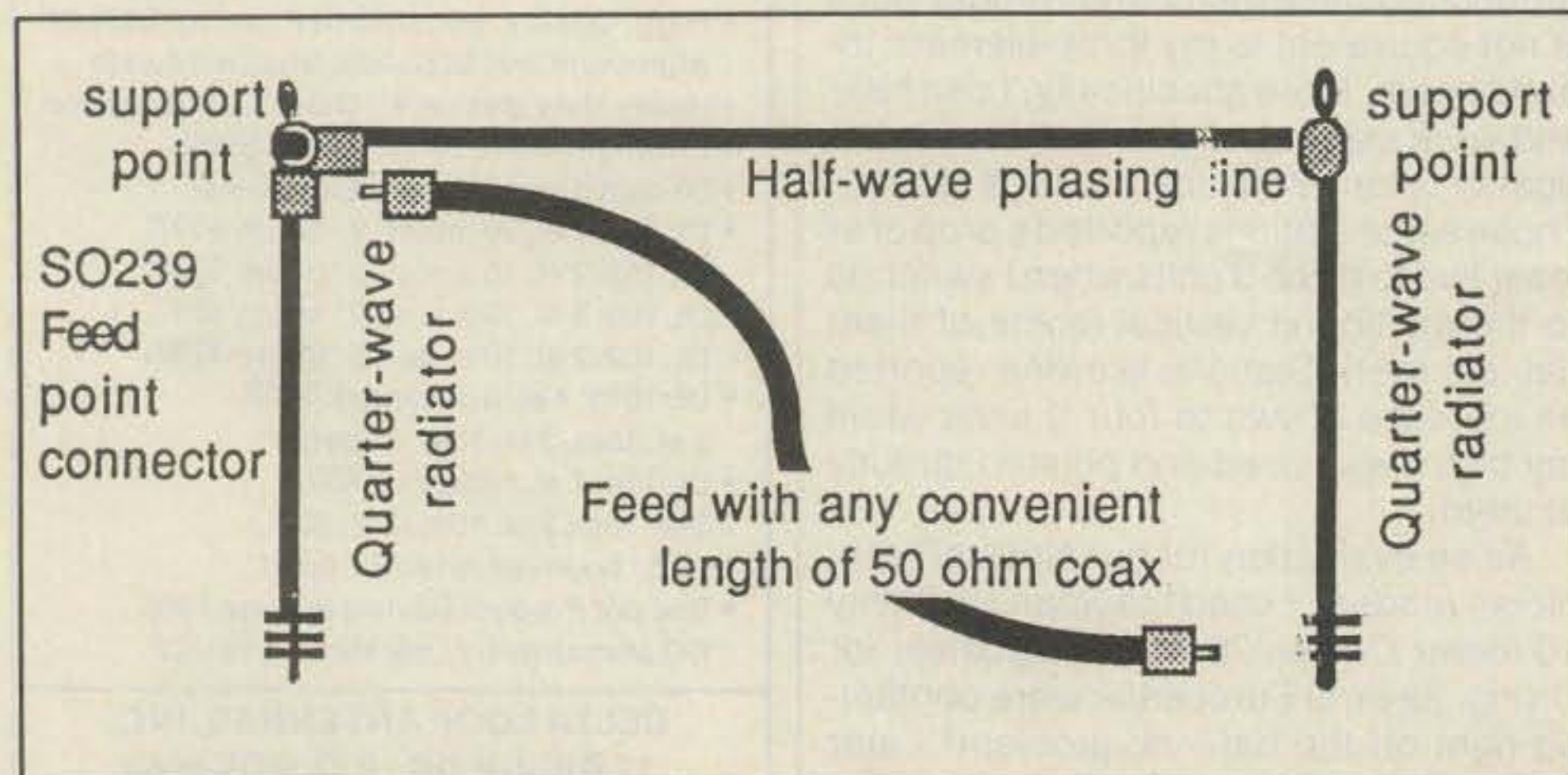


Fig. 1 - This sketch illustrates a typical HalfSquare installation.

The HalfSquare operates like an upside-down pair of phase verticals, with its top phasing line eliminating grounding requirements. The antenna exhibits a broadside gain of several dB, with a noticeable null off its ends and maximum signal radiation at a low-to-the-horizon angle for DXing. Unlike many horizontal-type wire antennas, the HalfSquare performs well at relatively low heights. This antenna is mainly attractive for DXing. However, a dipole or Sparky will definitely beat it for stateside QSOs. Conversely, the HalfSquare minimizes U.S. QRM when serious DXing is your preference.

This neat antenna also proved to be a breeze to install. I merely "quick launched" a pull-up rope over two tree limbs, attached the antenna, let its vertical sides dangle, and it was ready for operation.

Performance of the HalfSquare reminded me of phased Sparkys, if you can visualize that analogy. My beam still beat the HalfSquare, but the margin of difference was surprisingly close. My ground-mounted vertical was no comparison. It is amazing what can be accomplished with a hank of wire. This antenna's accompanying 40-page booklet also describes many clever ways to mount it and use nearby objects as signal reflectors. Can you visualize using one of these gems on 40 or 80 meters? Wow!

### Vacation Bound?

Antennas West also sells a neat quick-install Slinky® antenna for use in motels and apartments. Just stick a couple of suction cups on the wall, thread two Slinkys® with their support line between them, clip on coax, and you are ready for operation. The Slinky® antenna is 15 feet long and works 40 through 10 meters. This antenna begs for creative experimentation. I am presently using two Slinkys® to build a 2 1/2 foot square by 4 foot long 10 meter quad. You can probably visualize even more and better designs.

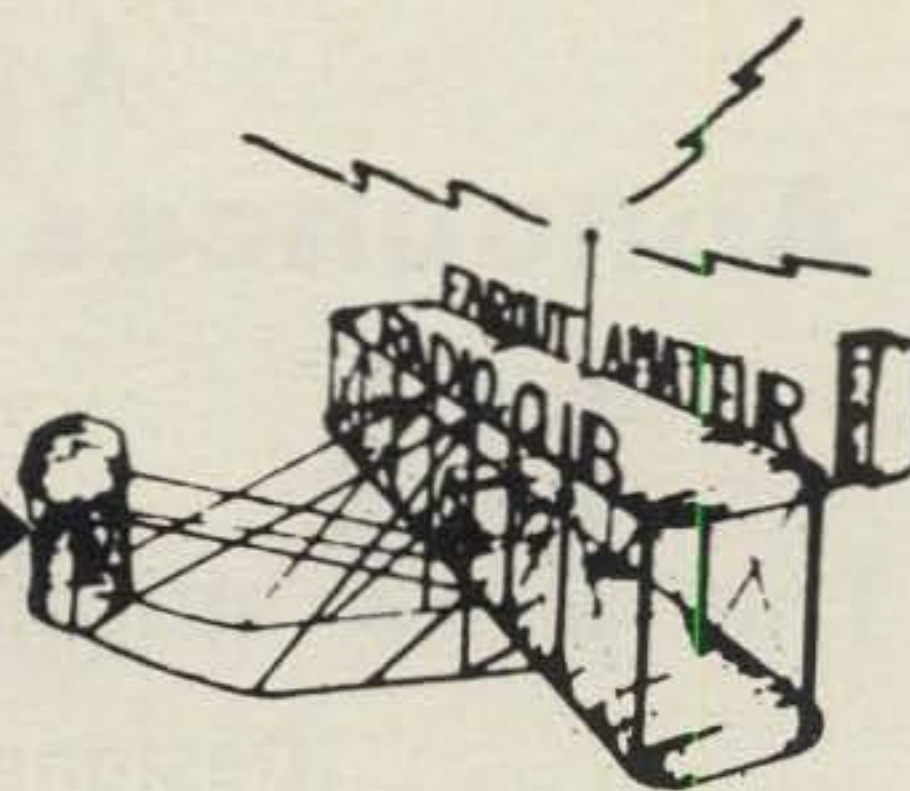
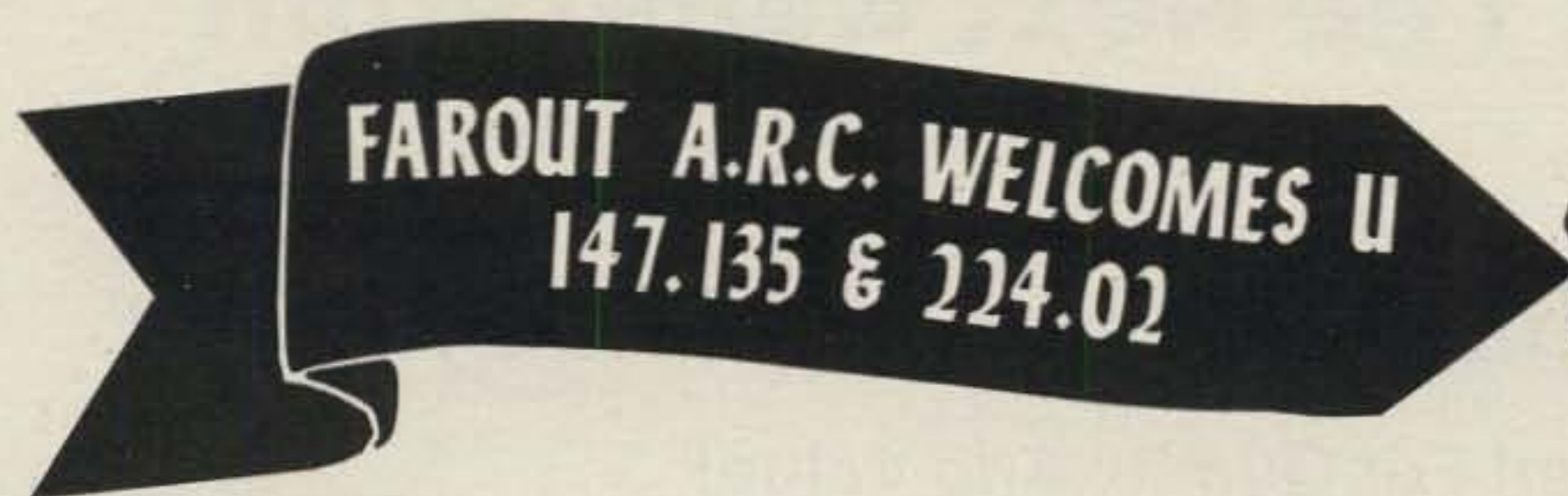
### Conclusion

Considering today's cost of single-purchased components, the time involved in antenna assembly, and the benefits of purchasing ready-to-install skywires, Antennas West's goodies are a logical solution. Their manuals are also very good instructors. One explains the finer points of wire selection (like how stranded copper wire corrodes, its strands rub, and noisy reception results). Another booklet describes time-proven fast and effective methods of antenna installation. Check with Antennas West the next time you need a special radiator for home or portable use. You will like the results.

For more product information, contact Antennas West, Box 50062-S, Provo, UT 84605 (telephone 801-373-8425).



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**B-3016-G** 30W in = 160W out  
**B-215-G** 2W in = 150W out

# 1-6

**220 MHz Amplifiers**  
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 13.8 vDC 32 amps max.  
 440 watts (DC) 68% efficiency

**8** **30W in - 600W out**  
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The Band-Pass filter allows wideband performance while meeting FCC specifications . . . 1.8 - 4.0 MHz, 4.0 - 9.0 MHz, 9 - 15 MHz, 15 - 50 MHz . . . Typical harmonic - 50 dB

**9** **50W in - 800W out**  
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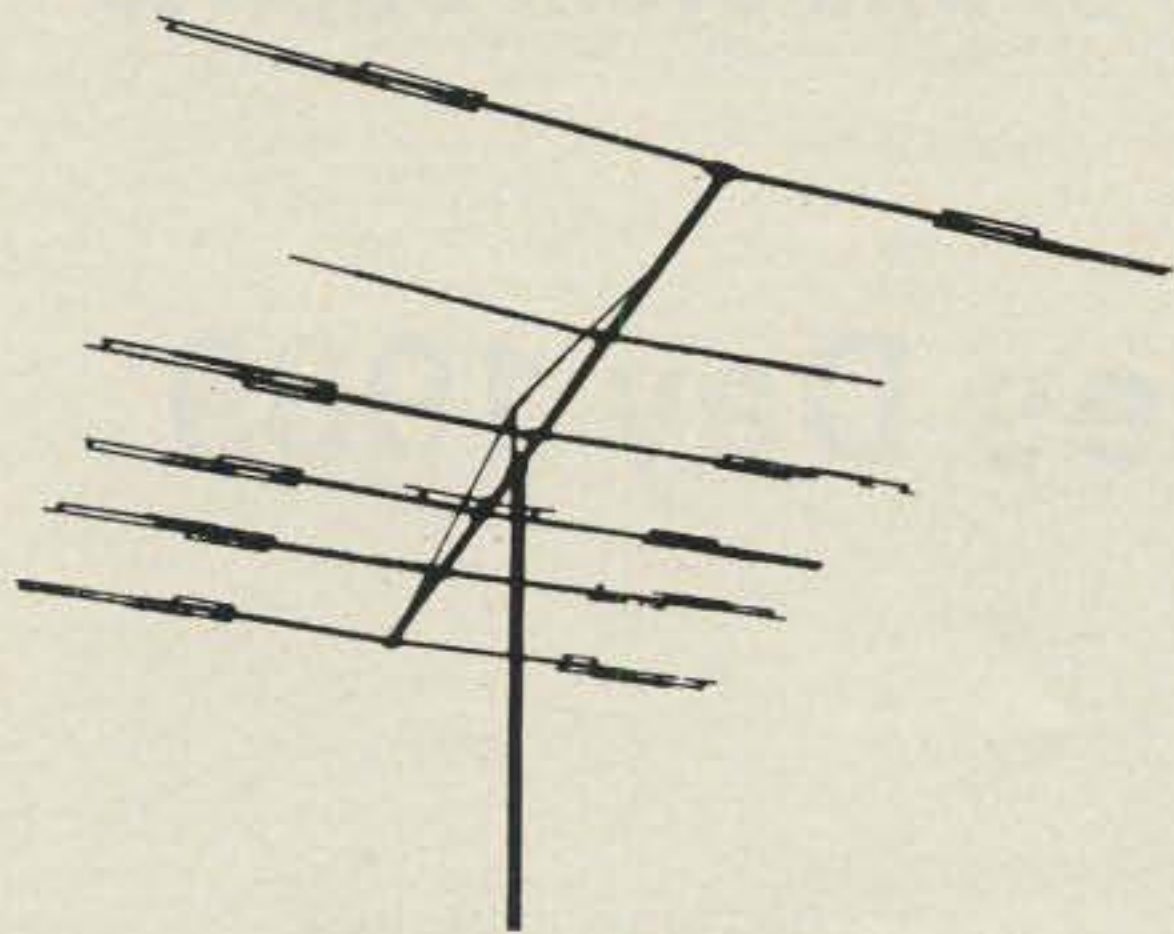
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## Best Amateur Tribander Available

### KT-34XA (10, 15, 20M)



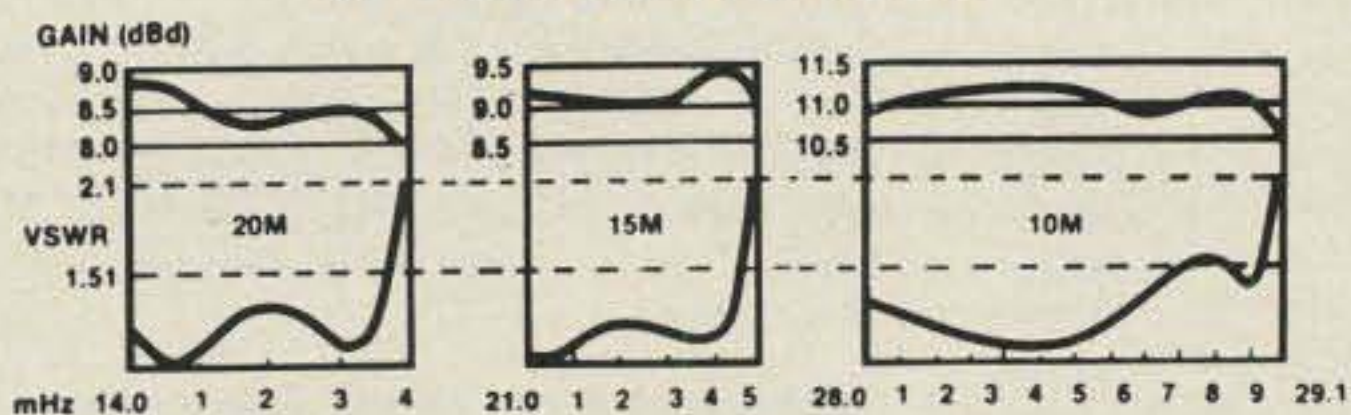
#### ELECTRICAL

- Bandwidth..... 14.0-14.350 MHz  
21.0-21.450 MHz  
28-29.1 MHz
- Gain..... 8.5-9 dB  
9-9.5 dB  
11-11.3 dB
- VSWR..... 1.5:1
- F/B..... 20 dB
- F/S..... 40 dB
- Feed Imp..... 50 Ohms with balun
- Balun..... 4:1, 5 kW PEP

#### MECHANICAL

- Element Length..... 24 ft.
- Boom Length..... 32 ft.
- Turn Radius..... 21.5 ft.
- Windload..... 9 sq. ft.
- Weight..... 68 lbs.
- Mast..... 2 in. O.D.

#### KT-34XA Gain vs. VSWR

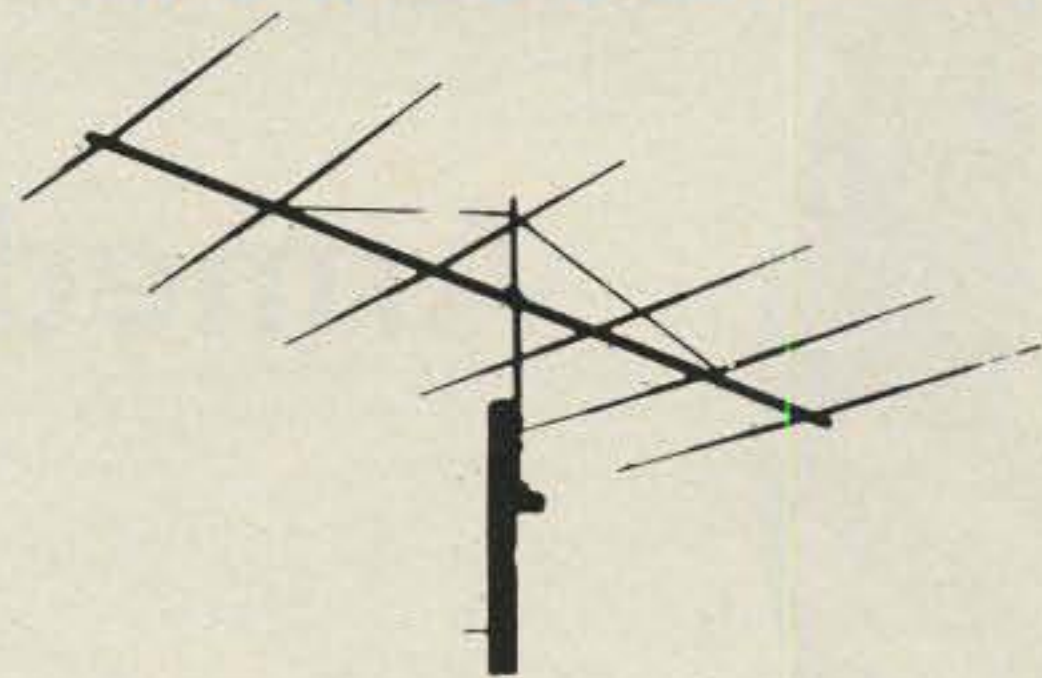


The KT-34XA's design represents the first major advancement in tribander technology in over 20 years! The conventional traps, coils, and capacitors have been discarded in favor of integral linear loading and hi-Q air capacitors, all composed of aluminum tubing. These give the KT-34XA a conservative power handling capability of 5KW PEP and an unusually high level of operating efficiency. Linear loading also makes full 1/4-wave elements possible on 10 and 15 meters, and brings 20 meters much closer to the desirable 1/4-wave than any conventional tribander.

Have limited space? Order a KT-34A. It's upgradable to a KT-34XA and similar in performance!

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### 10M-6 World Class Extra



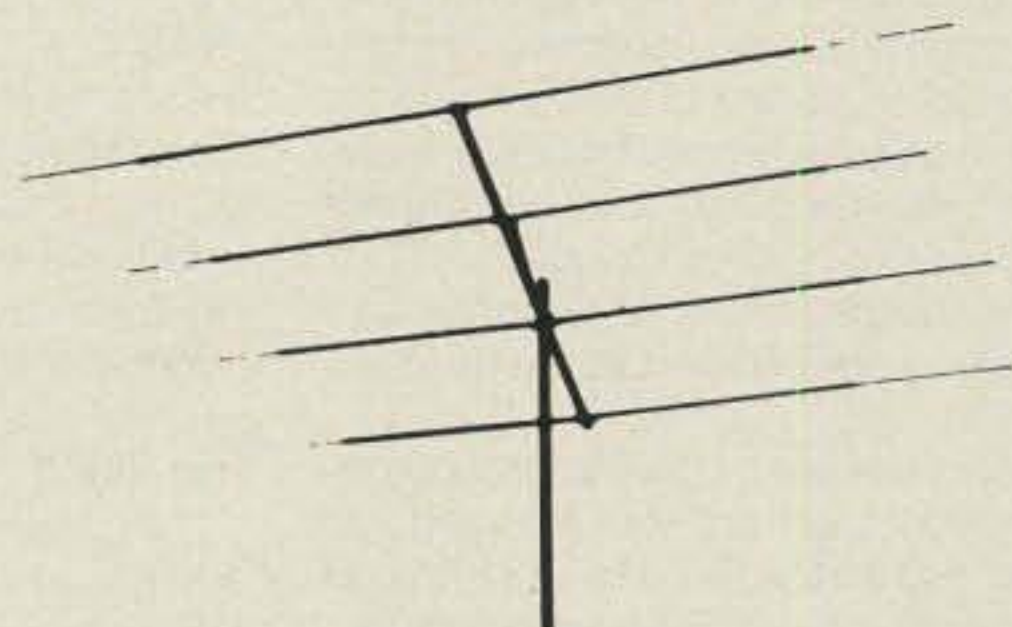
#### ELECTRICAL

- Bandwidth... 28-30 MHz  
x 1 MHz
- Gain..... 11 dBd
- VSWR..... 1.5:1
- F/B..... 30 dB
- Feed Imp..... 50 Ohms
- Balun..... 4:1, 5 kW

#### MECHANICAL

- Element Length.... 18 ft.
- Boom Length..... 27.5 ft.
- Turn Radius. 16.5 ft., 8 in.
- Windload..... 4 sq. ft.
- Weight..... 29 lbs.
- Mast..... 2 in.

### 10M-4



#### ELECTRICAL

- Bandwidth... 28-30 MHz  
x 1 MHz
- Gain..... 7.7 dBd
- VSWR..... 1.5:1
- F/B..... 25 dB
- Feed Imp..... 50 Ohms
- Balun..... 4:1, 5 kW

#### MECHANICAL

- Element Length.... 18 ft.
- Boom Length..... 10 ft.
- Turn Radius..... 10.5 ft.
- Windload..... 2.25 sq. ft.
- Weight..... 12 lbs.
- Mast..... 2 in.

### JV-10

#### ELECTRICAL

- Bandwidth... 27-30 MHz  
x 250 kHz
- Gain..... 3 dB gnd/plane
- VSWR..... 1.5:1
- Feed Imp..... 50 Ohms

#### MECHANICAL

- Windload.... 1.8 sq. ft.
- Weight..... 10 lbs.
- Mast..... 2 in.

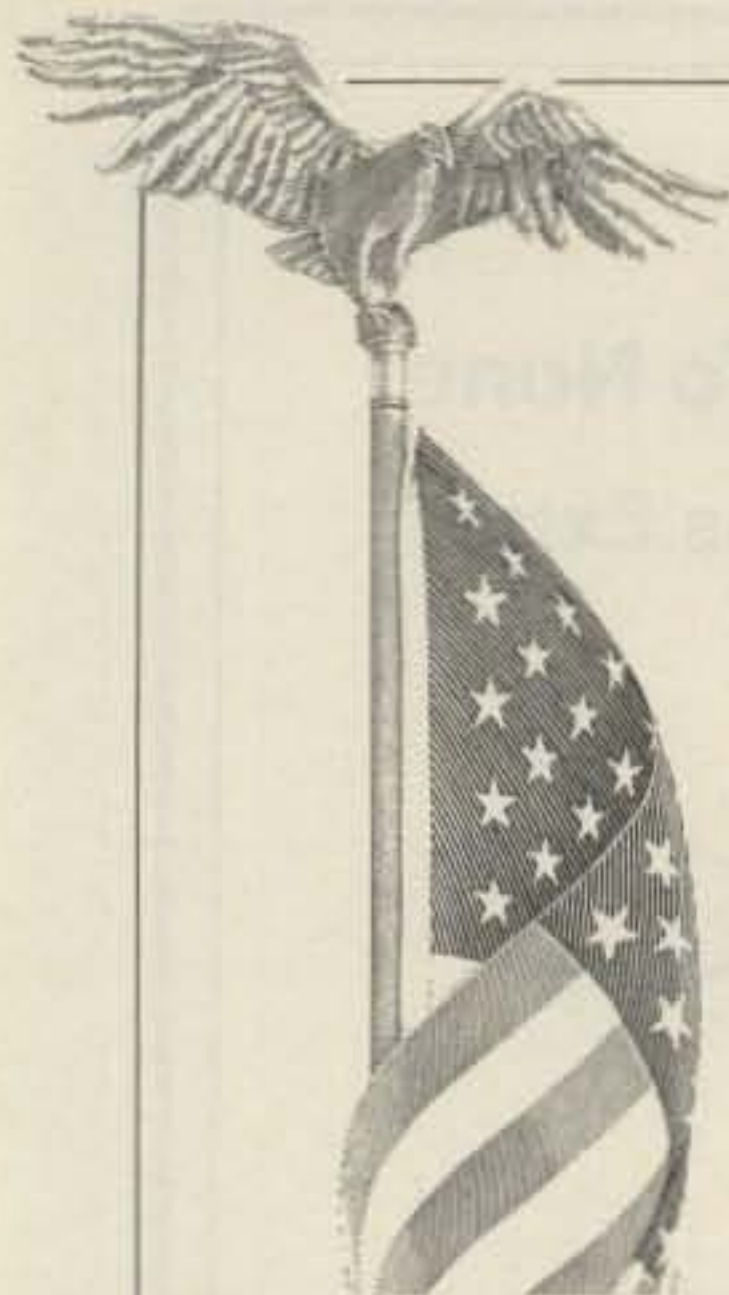


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**May 20th marks the 40th anniversary of the Armed Forces Day Communication Test. Following are the rules of this event open to amateurs and SWLs.**

## Armed Forces Day 1989

**T**he annual Armed Forces Day Communication Test is set for Saturday, May 20th and marks the 40th anniversary of this event, which emphasizes mutual assistance and warm esteem between the military and amateur radio communities. The traditional military-to-amateur crossband operation and broadcast of the Secretary of Defense message are featured and include operations in CW, SSB, RTTY, and packet radio.

Special QSLs will be awarded to those amateur operators achieving a verified two-way contact with any of the participating military radio stations. Interception of these contacts by SWLs are not acknowledged by QSLs. However, anyone who receives and accurately copies the Armed Forces Day CW and/or RTTY message from the Secretary of Defense can qualify to receive a special certificate from the Secretary.

The military-to-amateur crossband operations will be conducted from May 20th at 1300 UTC to May 21st at 0245 UTC. Military stations participating in crossband operations include:

**AAE**  
HF/MARS Radio Facility  
Fort Sam Houston, TX

**AAH**  
Army HF/MARS Radio Facility  
Fort Lewis, WA

**AIR**  
2045th Communications Group  
Andrews Air Force Base  
Washington, DC

**NAM**  
Naval Communications Area  
MAster Station LANT  
Norfolk, VA

**NAV**  
HQ Navy-Marine Corps  
MARS Radio Station  
Cheltenham, MD

**NPG**  
Naval Communication Station  
Stockton, CA

**NPL**  
Naval Communication Station  
San Diego, CA

**NMH**  
Coast Guard Radio Station  
Alexandria, VA

**NMN**  
Coast Guard Radio Station  
Portsmouth, VA

**NZJ**  
Marine Corps Air Station  
El Toro, CA

**WAR**  
HQ Army MARS Radio Station  
Fort Detrick, MD

Military stations will transmit on the following frequencies and announce the specific amateur band frequency being monitored.

Freq. (kHz)	Emission	Station
4001.5	LSB	NPG
4010	CW	NPG
4015	CW	NMH
4018.5	LSB	WAR
4025	LSB	AIR
4028.5	LSB	AAE
4033.5	LSB	AAH
6970	CW	NPG
6988	RTTY/CW	AAH
6995.5	CW	AIR
6997.5	CW	WAR
7301.5	LSB	NPG
7315	LSB	AIR
7346.5	LSB	NMH
7358.5	LSB	AAE
7365	CW	NPG
7372.5	RTTY	NAV
7375	RTTY	NZJ
7382.5	RTTY	NPL
7393	LSB/RTTY/CW	NMN
10259.5	CW	NPG
13927.5	RTTY	NPG
13975.5	CW	NPG
13986.5	RTTY	AIR
13992.5	RTTY/CW	WAR
13994.5	USB	AAE
13997.5	CW	AIR
14375	USB	NPG
14385	USB	NPL
14389.5	USB	NAV
14400	USB/RTTY/CW	NAM
14403.5	USB	WAR
14408	USB	AIR

Freq. (kHz)	Emission	Station
14440	RTTY	NMH
14480	USB	NZJ
14488.5	USB	AAH
14665	RTTY/CW	AAE
20937.5	USB	NMH
20975	USB	AAH
20992.5	Packet	AAE
20994.5	USB	WAR
20998.5	CW	NPG
21460	USB	NPG
27820	USB	AAH
27992.5	USB	AAE

**Receiving Test.** The CW and RTTY broadcast will be special Armed Forces Day messages from the Secretary of Defense to any amateur radio operator or SWL participating. A 10-minute tuning call will precede each transmission. The CW broadcast will be broadcast at 25 wpm beginning at 0300 UTC May 21. The RTTY broadcast will begin at 0345 UTC May 21 and transmit 60 wpm using 170 Hz shift. Both the CW and RTTY broadcasts will be transmitted from the following stations on the listed frequencies: AAE 4018.5, 6988, 9990 kHz; AAH 4021.5, 7309.5, 13994.5 kHz; AIR 6995.5, 13997.5 kHz; NAM 4005, 7393, 14400 kHz; NAV 7372.5, 14389.5 kHz; NPG 4010, 7365, 13975.5 kHz; and WAR 4028.5, 6997.5, 14403.5 kHz.

**Submission of test entries.** Transcripts of the CW and/or RTTY receiving tests should be submitted "as received." No attempt should be made to correct possible transmission errors. The time, frequency, and callsign of the military station copied, as well as the name, callsign, and address of the individual submitting the entry must be indicated on the page containing the test message. Entries must be post-marked no later than May 27, 1989 and submitted to the respective military commands as follows.

**AIR:** Armed Forces Day Test, 2045CG/DOJM, Andrews AFB, Washington, DC 20331-6345.

**AAE, AAH, WAR:** Armed Forces Day Test, Commander USAISC., Attn. AS-OP-OA, Fort Huachuca, AZ 85613-5000.

**NAM, NAV, NPG:** Armed Forces Day Test, Naval Communication Unit, Washington, DC 20397-5161.







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| Ameritron           | Bird      | Kantronics   | RF Concepts    |
| Amphenol            | Butternut | Kenwood      | Rohn           |
| Amp Supply          | Centurion | Larsen       | Telex/Hygain   |
| Antenna Specialists | CES       | MFJ          | Ten-Tec        |
| Astron              | Cushcraft | Mirage/KLM   | Unadilla/Reyco |
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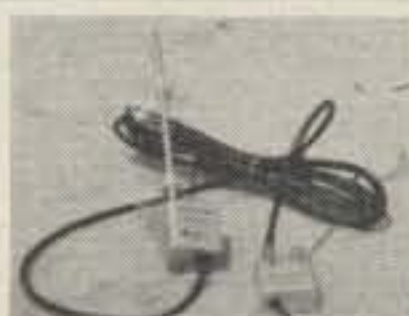
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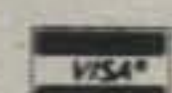
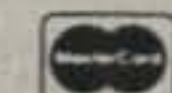
Model	Power (Watts)	Cut Off Frequency	Frequency of Maximum Attenuation	Minimum Attenuation	Frequency Range	Price
FL10/1500	1000	34 MHz	52 MHz	70 db	1.8 - 30 MHz	\$36.95*
FL10/100	100	44 MHz	57 MHz	60 db	1.8 - 30 MHz	\$29.50*
FL6/1500	1000	55 MHz	63 MHz	70 db	6 meter	\$49.50*
FL6/100	100	55 MHz	63 MHz	50 db	6 meter	\$34.50*

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## The Coax Line Stretcher

BY RICHARD A. GENAILLE\*, W4UW

Perhaps I should have called the Coax Line Stretcher the "poor man's antenna tuner" because in some respects it will cure some of the problems that a tuner will, but at less cost! I say cure, since if all antennas and their transmission lines were to show the output end of typical solid-state, "no-tune" RF amplifiers an impedance of 50 ohms resistive (like a dummy load) there would be no pain. Unfortunately, that doesn't happen in the real world, and as many of us who have tried to operate solid-state transceivers into unsatisfactory loads sans antenna tuner can attest, a load that is not to the RF amplifier's liking can be a big pain in the amplifier.

In the days B.C. and B.C. (Before Coax and Before Computers) things were much simpler. We simply connected our single- or two-wire feedlines to the tank circuit through some husky capacitors, to keep the DC off the antenna, and away we went. Some of us built antenna couplers for our end-fed or center-fed Zepp antennas, and with the help of test equipment like a neon bulb and an RF ammeter at our feedlines, we were working DX and having fun. So what if we had a voltage node falling in the shack. The only annoying thing that happened was the RF bite on the nose or lips when we got too close to the microphone. Today, with computers, multimode controllers, and other ancillary equipment connected to our receiving and transmitting equipment, RF floating around the shack is bad news! Ideally, we would like for all of the RF to flow through our coax feedlines and find its way to the antenna where it belongs.

Until recently my transceivers all used vacuum tubes as RF amplifiers. Whether I was running "barefoot" or driving a tube-type final amplifier, I could wander up and down each band with impunity, since the tube-type RF amplifiers were somewhat more tolerant of antenna load variations. The adjustment of the plate

and load controls helped to balance out the small reactive load components either capacitive or inductive that were presented by the antenna load.

I had a rude awakening when I disposed of my TS-820 and got a new play-toy in the form of a Ten-Tec Paragon transceiver. After having the thing kick off a few times while I was transmitting, I decided that I had better educate myself regarding solid-state power amplifiers, broadband versus resonant tank circuits, the two kinds of SWR, and transistor amplifier efficiency. Fortunately, the good people at Ten-Tec provided dissertations on all of these things in the Paragon Owner's Manual! Everyone should be well acquainted with the peculiarities of solid-state RF amplifiers before attempting to use them.

Solid-state, "no-tune" RF amplifiers are fussy regarding what they see at the antenna receptacle. They might operate okay with an SWR of 3 to 1 and then again they may not. It all depends on whether the load impedance is 150 ohms or 17 ohms. Both load impedances will show up as 3 to 1 on the SWR meter, but the RF amplifier will operate much differently looking into 150 ohms versus 17 ohms. Reactive components are not separated from the resistive components and disclosed by the SWR meter. Solid-state, "no-tune" RF amplifiers designed for 50 ohm output will not usually meet output specs when looking into an impedance much higher or lower than 50 ohms. I had suspicions, even before owning or knowing much about all-solid-state transceivers, that the reason antenna tuners were pushed so hard by the manufacturers and most dealers when promoting the sale of the newer transceivers was because many new purchasers of their equipment would be very much surprised when they tried to transmit without an antenna tuner in the line.

As I said previously, I had a rude awakening. For years I was particularly concerned that the feedline coming into the shack from whatever antenna it was connected to would show the lowest possible

SWR. I was even accused, by some of my amateur friends, of being a "purist."

For many years my 60 foot vertical folded unipole, which I use on both 80 and 160 meters, has been matched to my buried 50 ohm feedlines by using a tuner of my own design that enables me to see almost a perfect SWR across each band! The Paragon loves that arrangement!

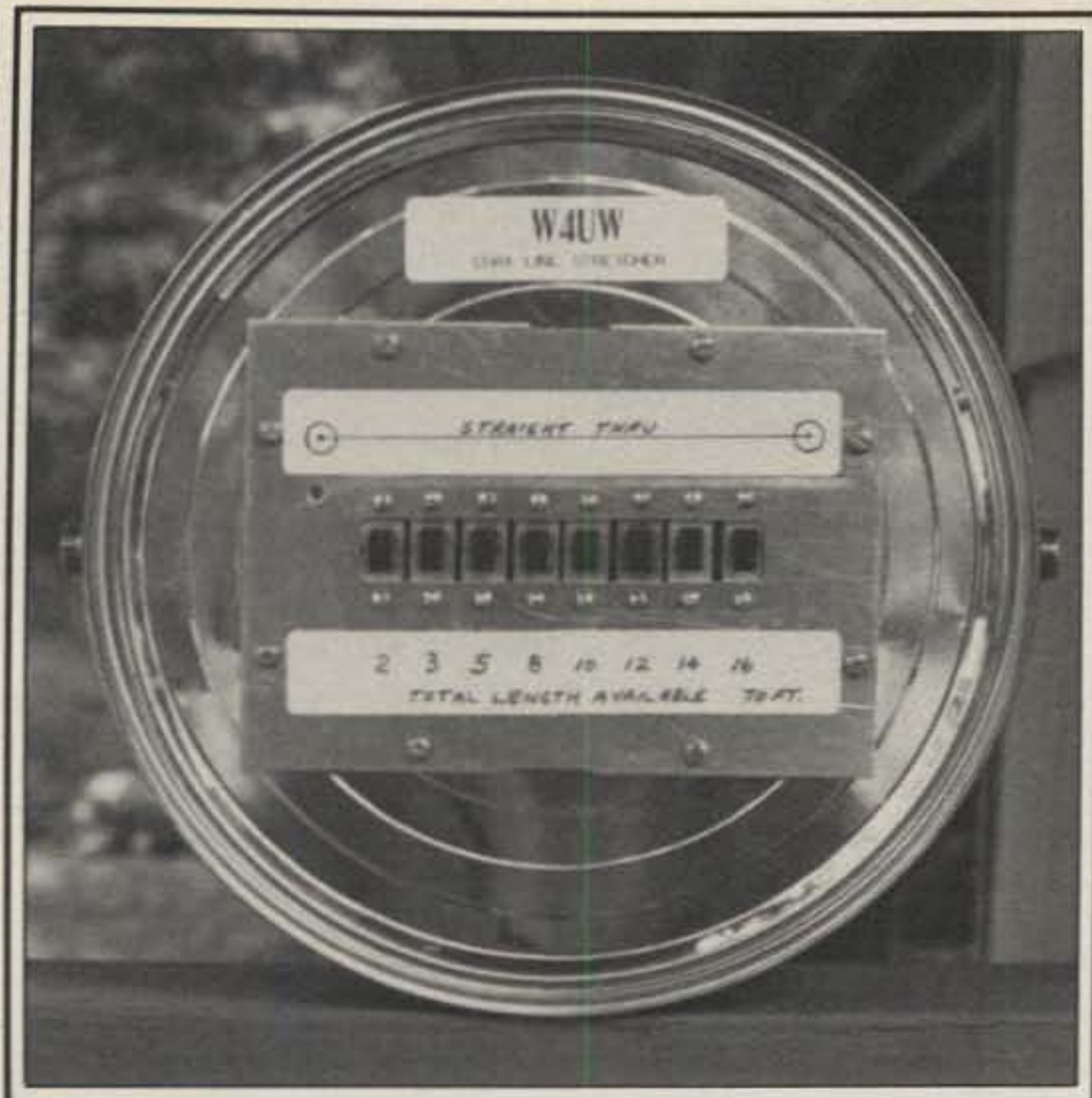
On the other hand, my newly erected horizontal 40 and 12 meter folded dipoles did not fare quite as well. These antennas were constructed with all the care and diligence that a "purist" can exercise. The best that I was able to do was an SWR of from 1.5 at 7.0 MHz to 1.6 at 7.3 MHz with a "perfect" at 7.1 MHz. Instead of the 1.5 and 1.6 being on the high impedance side, the SWR was on the low impedance side, which did not please the Paragon. The 12 meter antenna gave me an SWR of 2 to 1 at the transceiver, which was on the high impedance side of 50 ohms, and the Paragon did not kick off when run at the maximum tune level, but the power output was not up to specs.

Why the 2 to 1 SWR? Just because I constructed the antenna properly and used the usual 4 to 1 balun doesn't mean much unless the antenna is at a finite height above perfectly conducting ground. (The charts in the various antenna handbooks showing the variation in radiation resistance of a horizontal half-wave antenna with height above perfectly conducting ground are quite revealing.) In the unlikely event that an antenna feedpoint is resistive, with an appropriate balun providing a perfect transition to a 50 ohm coax feedline, the output stage of a solid-state transceiver would be ecstatic! This would occur only at the antenna's resonant frequency. Operating higher or lower than that frequency would result in the transceiver seeing some reactive component.

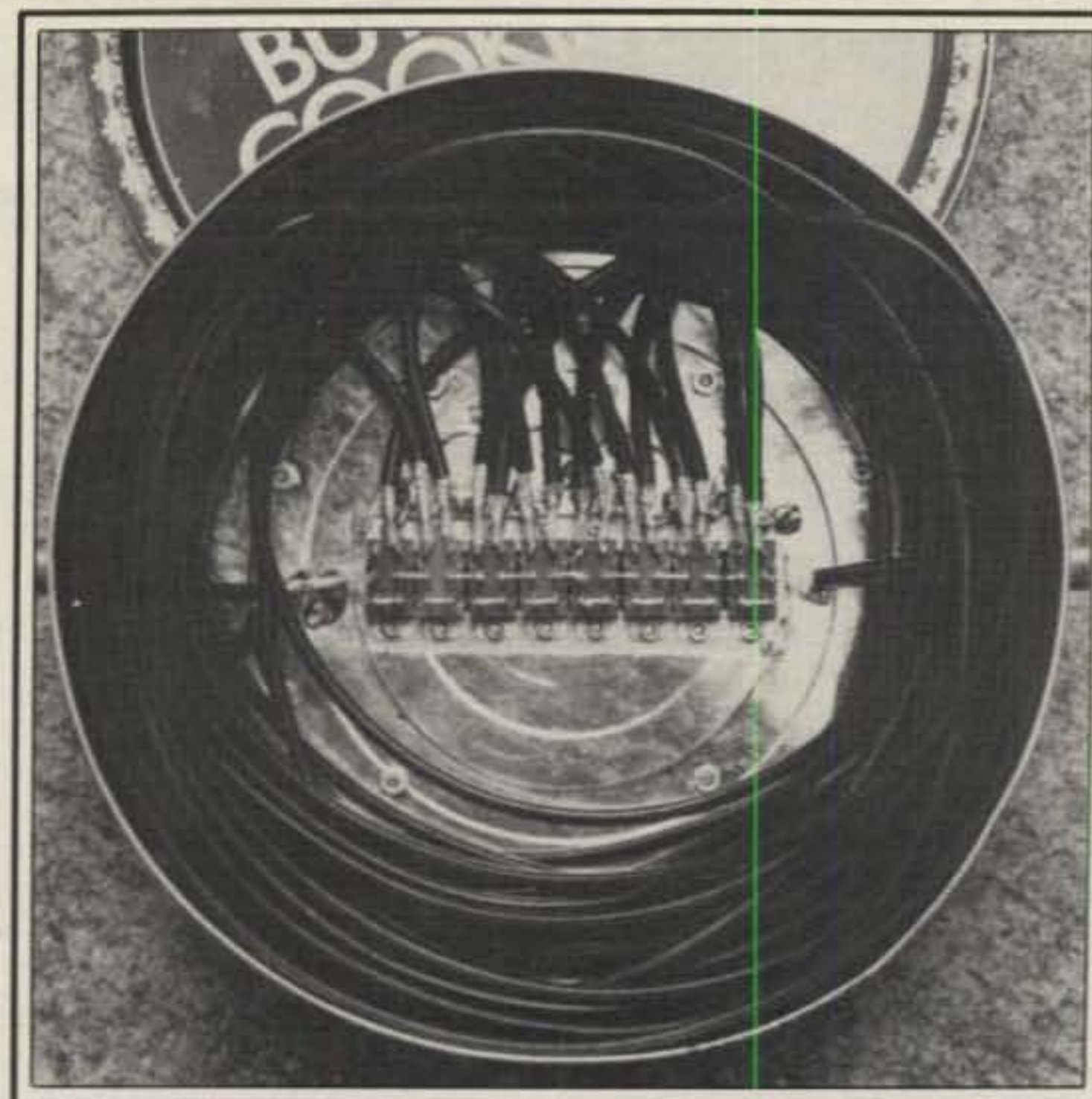
A good point to remember is that if the match between the feedpoint of the antenna and the transmission line is not correct (assuming that the antenna itself is resonant) then there will be a standing wave on the transmission line. Depend-

\*719 Quarterstaff Road, Winston-Salem, NC 27104





Front view of the operating switches of the Coax Line Stretcher.



Inside view of the Coax Line Stretcher showing the placement of the cable.

ing on the line length a device feeding RF energy to a transmission line will see a voltage loop or a current loop. If a current loop falls near the input end of the line the input impedance that the device sees will be lower than the characteristic impedance of the transmission line. If a voltage loop is present, the input impedance at the input end of the line will be higher than the characteristic impedance of the transmission line. As stated in the Paragon Owner's Manual, "any reactive component in the load impedance is applied in a transformed way to the RF amplifier collector circuit. Certain reactances at this point, especially inductive, give rise to parasitic oscillation. To correct this,

the antenna system impedance should be changed to remove this reactance, or a matching network should be inserted between the antenna and transceiver!" With these facts in mind it becomes difficult to pursue the path of complete "purism" when constructing an antenna system.

One simply does the best one can relative to construction of the system and hopes for the best. If the antenna system gives you problems, that is when you need an antenna tuner or some means of placating the solid-state, "no-tune" RF amplifier!

The "some means" leads us to the Coax Line Stretcher! Antenna tuners are not

the least expensive items in the ham radio inventory, whether you buy one with your transceiver or build one. The fancy ones are automatically tuned. The homebrew variety generally have a couple of tuning capacitors and a rotary coil or coil with switch taps which means three additional controls to fool with when you shift frequency within a band or from band to band.

The Coax Line Stretcher may be the solution to the problem and at a maximum cost of about \$25 if you buy everything new. It will tell you whether or not you can fool the transceiver by adding some additional transmission line and changing what it sees at the input end of the trans-

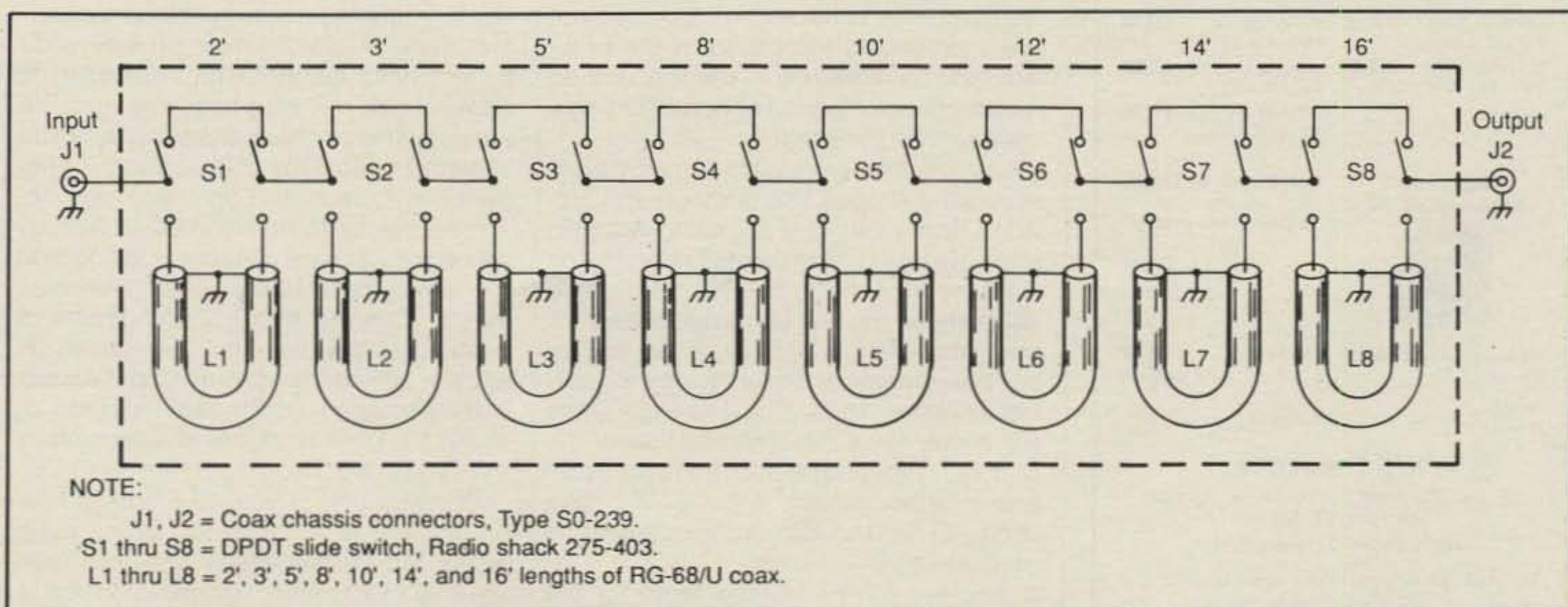


Fig. 1- Schematic of the Coax Line Stretcher.



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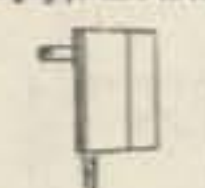
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### 40 Meter Folded Dipole

Frequency (MHz)	SWR	SWR with insertion of:	
	As installed	16 ft.	*50 ft.
7.0	1.5	1.0+	1.0
7.1	1.0	1.0+	1.0
7.2	1.2	1.0+	1.0
7.3	1.6+	1.0+	1.0+

### 12 Meter Folded Dipole

Frequency (MHz)	SWR	18 ft.	SWR with insertion of:		
	As installed		*22 ft.	35 ft.	48 ft.
24.89-24.99	2.0	1.1	1.05	1.0	1.0

### TH6DXX 3-Band Beam

Frequency (MHz)	SWR	SWR with insertion of:			
	As installed	*8ft.	28 ft.	30 ft.	
14.0	3.0	2.0	1.6	1.7	
14.1	1.8	1.6	1.1	1.2	
14.2	1.0	1.0	1.0	1.0+	
14.3	1.0+	1.0	1.0	1.0+	
				SWR with insertion of:	
		5 ft.	*23 ft.	38 ft.	
21.0	2.5	1.6	2.0	2.0	
21.2	1.9	1.6	1.4	1.4	
21.4	1.6	1.2	1.0	1.0	
				SWR with insertion of:	
			8 ft.	*16 ft.	
28.1	2.0		1.3	1.2	
28.5	1.4		1.3	1.1	
29.0	2.0		1.2	1.6	

Note: \* indicates configuration enabling transceiver (Ten-Tec Paragon) to deliver maximum rated power to beam antenna system at given frequency.

### Results at W4UW with the Coax Line Stretcher.

mission line. The CLS (let's acronymize Coax Line Stretcher at this point to relieve boredom) may be just the piece of test equipment you need to make those multiband antennas, dipoles, inverted Vees, delta loops, and other antenna systems look a bit better to your state-of-the-art transceiver. Regardless of whether you use an antenna tuner or add some additional transmission line to make the load look good to the solid-state amplifier, the end result is the same. You have not really corrected the cause of the problem; you have merely made the load on the amplifier look good or better! Being a "purist" has its limits!

Construction of the Coax Line Stretcher is quite simple. The photographs provide a front view of the operating switches and an inside view of the unit showing the placement of the cable. RG-58/U cable was used in my unit because, except for power-handling capability, it has electrical characteristics similar to my RG-8/U transmission lines. The RG-58/U limits the power level capability to that of the normal transceiver output for testing purposes, although with a low SWR I have used RG-58/U at kilowatt levels with no problem.

Another power limiting factor is the slide switches used in my unit as described in this article. Using the smaller

coax cable makes it possible to coil the total 70 feet of coax nicely inside the cookie tin. By the way, I did not include the cost of the tin of cookies, since you get to eat them anyway! The cookie tin, containing the popular Danish Butter Cookies, is probably available in every grocery store in the country. It is 10 1/2 inches in diameter and about 3 inches deep. It is easy to cut and solder to.

The schematic of the CLS is shown in fig. 1. I mounted my switches on a separate piece of aluminum to provide additional rigidity, since the metal used for the cookie tin is not very heavy gauge. The jumper wires on the slide switches can be soldered before the plate containing the switches is mounted on the cookie tin. The connections from the SO-239 chassis connectors are wired next, along with the wires that connect from switch to switch. Starting with a 2 foot length of coax, connect it to the first switch as shown, coiling the coax around the walls of the cookie tin. Do the same for the 3, 5, 8, 10, 12, 14, and 16 foot lengths of coax until you are done.

Construction of your CLS should now be finished with the exception of some labels for the switches. And, now you have up to 70 feet of transmission line to play with in many various lengths, depending on your station setup. Some sug-





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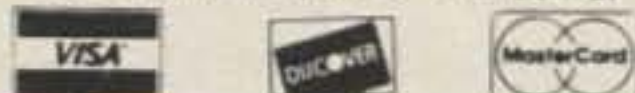
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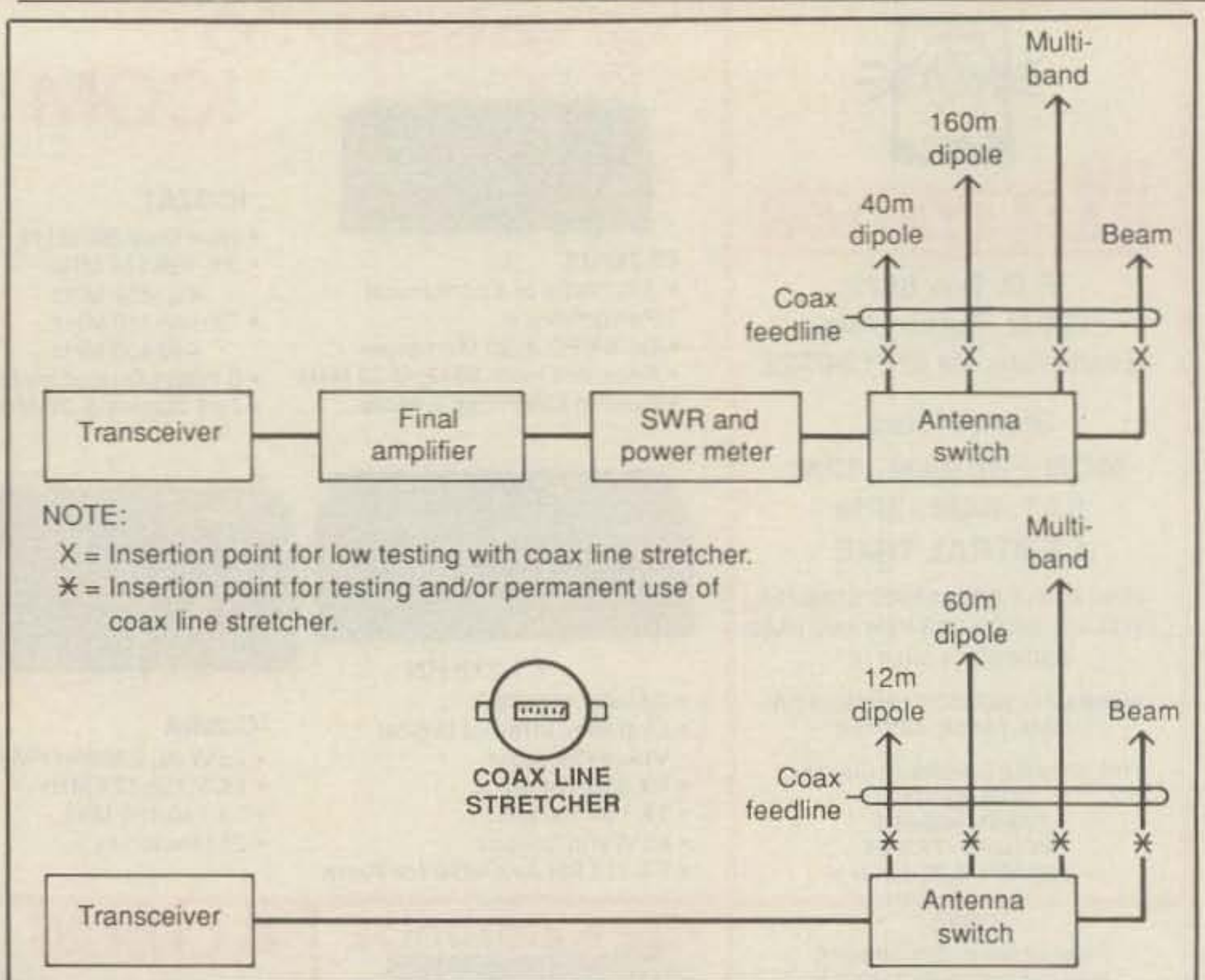


Fig. 2- Application block schematic for the Coax Line Stretcher.

gestions are provided in fig. 2. If a single antenna is used (not shown), all that you need do is to connect the transceiver directly to either chassis receptacle of the Coax Line Stretcher through a short length of coax cable. This assumes that your transceiver has a built-in SWR meter. If not, then an SWR meter should be inserted between the transceiver and the Coax Line Stretcher. Connect the antenna feedline to the other coax receptacle on the unit. Since you should already know what the SWR was before you connected the CLS, put your transceiver in the tune position and, with all of the CLS switches thrown for a straight through situation, see if the SWR still reads the same. Depending upon the frequency, the reading should be the same. From 21 MHz through 30 MHz the Coax Line Stretcher may cause a slightly different SWR reading, since its overall length is about 11 or so inches. I have found that the addition of even a short length of coax cable can cause a change in SWR reading at the input to the feedline. That is what the Coax Line Stretcher is all about: adding feedline to present a different load at the input to the feedline that may be more satisfactory to the RF amplifier.

Station arrangements where multiple antennas are switched to the station equipment via a coax or other type of antenna switch are shown in fig. 2, but the insertion principle for the Coax Line Stretcher is the same. As a matter of fact, I have two antennas coming into the shack that have had the feedlines "stretched."

Results with the CLS at my location are shown in Table I. The as-installed SWR on

40 meters looks reasonable, but as I mentioned previously, the Paragon did not like what it saw. Adding 16 feet of feedline made the input to the feedline look fine to the transceiver. However, using 50 feet resulted in more power being delivered by the Paragon to the antenna. On 12 meters an additional 22 feet of feedline did the trick! I experimented a bit with the feedline to the TH6DXX Beam but came up with different lengths of feedline for each of the three bands. This complicates matters a bit, but since I generally use an amplifier on these bands, especially when trying to work a "new one," I didn't worry too much about it.

The SB-220 amplifier doesn't get too upset with the "as-installed" situation. If I were running the transceiver barefoot on the beam, I would connect the Coax Line Stretcher between the transceiver and final amplifier and switch in the amount of feedline to do the trick.

Your feedline length can make a big difference in your solid-state "no-tune" transceiver's performance! One caveat, however: Don't expect this technique to work if you have constructed your antenna system in a slipshod manner. If you have, then the Coax Line Stretcher may not work for you, and you may need an antenna tuner to hide your big mistakes.

I hope that the \$25 that you spend building the Coax Line Stretcher pays off for you in terms of station performance and economy. If not, you have learned something about your antenna system, and you and your family still got to enjoy a tin of tasty Danish Butter Cookies!





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## Just A KØ Again

BY JOHN HOOG\*, KØGYK

**T**he Singapore stay is now a photo-album memory and 9V1TJ is QRT, but the QSLs still trickle in, perhaps one every day or two. Box 88 has my direct address, and the postman probably wonders about the frequent correspondence with the USSR. I gave out my home call as QSL manager; WDØEWH, the "G" sorter at the Zerro Bureau in Omaha, has given me sterling service. The cards are also still stacking up at the 9V Bureau; getting them here is going to be a fairly expensive proposition. Those QSLs are all reminders of a period that was close to ham heaven for someone who has never owned a rotatable antenna or a linear amplifier in 27 years on the air. What a difference a prefix makes!

The brag sheet shows 172 countries worked, 152 confirmed so far; WAZ worked and almost confirmed if Box 88 would hurry up with the Franz Josef Land card. WAS, R-100, the JARL awards—all are on or soon to be on the wall. Heady wine for a guy whose most prestigious certificate as KØGYK is one from the Rag Chewers' Club.

The 16-month stint in Singapore was not my first DXperience, but it was far and away the most active. Indeed, I was first issued 9V1TJ in 1978 but left Singapore two years later without having activated it. HL9WC was a bit more active in the early '80s, but again the press of work limited operating time. The most vivid memory is not the rare DX worked but the VK6, laughing his head off, who noted on the air one evening that "WC" was a perfect suffix for an amateur operator named John. Never give an Aussie an opening for low humor.

When I again arrived in Singapore in 1986 (yeah, tough duty but somebody has to do it), the omens were favorable. The QTH was a rather dingy postwar house that Uncle Sam had bought from the lowest bidder, but it was located on one of the island's highest hills and the yard sported two magnificent trees about 150 feet apart. The dipole went up without great

difficulty, the FT-102 was dusted off and installed in a back room, and I headed down to the licensing office to see to the formalities of getting a ticket.

### Rules, Regs, and Bands

Singapore authorities do not issue short-term licenses (I understand even the Colvins were once politely refused 9V calls), but they will consider, on a case-by-case basis, accommodating long-term expatriates. The requirements are more than is the case in the United States but are not particularly onerous—a character reference, foreign license, permission by the landlord for erection of antennas, type approval of proposed equipment, and execution of a secrecy of communications oath. The authorities forbid rigs sporting general-coverage receivers because of concerns about eavesdropping on sensitive government communications. (The national amateur society is working vigorously to have the rules amended, given the scarcity of new equipment without that feature.) The sta-

tion inspection is thorough. The inspectors check for TVI on a battered, plastic-cased portable receiver which will cross-hatch if you don't cover your mouth when you sneeze. After one inspection failure I bought a low-pass filter, beefed up the grounding system, groveled a bit, and finally got the seal of approval. Power output is limited to 100 watts DC, so a bit of work was required on the 102's innards to drop the power to an acceptable level. (I got nowhere by offering to simply load the rig to only 200 mils.)

There is no 6 meter allocation in Singapore, and most VHF/UHF frequencies are at best available only as spot allocations with special approval. Forty meters is a tough band to work anywhere in Zone 3; I still marvel at 9V1RH's ability to pick out SSB signals in the US phone segment through the broadcast station QRM. Ten watts is the power limit on 160, making it all but unusable. All WARC bands are available, but lightly populated; 80 is dominated by Indonesian rag-chewers. I gravitated, therefore, toward 20, 15, and 10 meters with some 40 meter CW activity.

**9V1TJ**  
**SINGAPORE**



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**73,  
JOHN HOOG  
9V1TJ/KØGYK  
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\*348 Academy St., Sainte Genevieve, MO 63670

*The author's QSL card from Singapore. Most of us would like one of these for our collection.*



## On the Air

What is such DX operating like? Well, it's not like a DXpedition. The pileups are fun—only a saint would deny that being the center of attention is an ego trip—and if the pack gets unruly or if conditions are marginal, there is no pressure to plug away. The pileups—and I—would still be there tomorrow.

Because I'd not yet passed the Extra CW exam, I made it a point to pound a lot of brass. DX operating on CW, however, is wild and woolley. Keeping the pileups under control is a problem. What the fraternity needs more than anything else is a CW prosign that will sizzle the airwaves—something like QRLID to mean, "I'm calling the GM3 station, you lizard. I hope the woodpecker QSYs right along with you after you finally give up calling me." (Note to the A1 Operators' Club: I never wanted to be a member anyway!)

Without truly heroic persistence, you chance of sending a partial call on CW and hearing the reply you want through the QRM is like trying to work DXCC with an indoor basement antenna. For a less-than-seasoned CW operator like me, split-frequency operation is almost a necessity. By spreading out the pileup, you at least have a chance of avoiding the din created by mindless side-swipers. There is a surprisingly large group of hams who don't understand what "U10" or "D5" mean, so split operating does add to the pack's problems in hearing you through stations on your transmitting frequency.

## Hobnobbing with the Hoi Polloi

If the above is solving your problem by making a different one for the pack, it perhaps suggests that DX stations are operated by callous souls. I certainly acquired a kind of self-defensive arrogance, like switching off the rig when necessary despite the continuing pileup. If the choice is between placating the angry XYL in the next room or the angry operator on the next continent, it isn't even close. The pileup will still be there tomorrow; get the XYL too upset and she may not be.

W6ISQ recently advised little pistols to tune around the fringes of big-league pileups to look for less-rare but still interesting DX. Boy, was he right, at least as far as I'm concerned. With only 50 watts, I usually gave up the chase for the really rare ones fairly quickly; running off my own string was something to do while waiting for the other pileup to abate. While I'd never admit it, maybe it also salvaged my injured pride at not being able to play with the big boys.

There seems to be as many styles for handling pileups, on phone or CW, as there are DX operators. After trying several different techniques such as by the numbers, by asking for partial calls only, or by taking a list, I found most of them more trouble than they were worth. I even

tried working Europe by country one night, until an irate voice broke in to ask if I thought Belgium was in South America. (Well, no, but the map is small and I didn't have my glasses on.) Except for operating split frequency when the pileups got big, it seemed best to me to simply let 'em rip and answer what I heard. Many of my pileups tapered off just as I was getting pumped up and wishing it were WWDX weekend; a surprisingly large number of QSLs from North America report 100 watts to modest antennas.

## JAs and Others I Have Known

A DX column not too long ago described a second trip to Clipperton by a group which had not been favored with good openings to Europe the first time around. The author reported QSO rates down considerably on this second stint, and noted delicately that European operating techniques were not yet well-developed. I agree, unfortunately; pileups when the band was open to Europe always teetered on the edge of control. That bad impression is further heightened for Asian amateurs by comparison with the style of the Asian behemoths—the JAs.

How to sing their praises? JAs are the Cadillacs of pileup operators on phone or on CW. They stand by for partial calls, they tailend properly, and they have the patience and discipline which translates into high QSO rates. As demonstrated by the recent problems with traffic handling in the wake of Hurricane Gilbert, that discipline is a habit we all could cultivate.

US amateurs, based on my experience in a relatively limited number of band openings, rank near but not quite with the JA crew as good operators. Some of the problems I had with North American pileups were my own fault as well. One night during a beautiful opening to North America, I stood by periodically for Zone 2, which I still needed for WAZ. Although I didn't hear any responses, I did answer a couple of Caribbean stations who sneaked their calls into the silence and whose countries I needed for DXCC. The pack rumbled ominously, but all's fair in love, war, and upping my own country total. I should have stood by not only for Zone 2 but also for other non-US North Americans, but when the adrenalin is flowing, who can always remember the basics? I also once ignored an FM5 who was answering my "CQ North America" call because I mistook him for an overeager French station. I never worried about making the same mistake twice. There are so many to make the first time!

## QSLs and Writer's Cramp

As delightful as it is to run a JA pileup, there is a downside: the tremendous number of QSLs it generates. I was first

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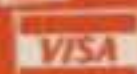
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puzzled and then amused when as many as four QSL cards would arrive from a JA station for the same QSO—direct to Singapore, direct to K0GYK, and two more via the 9V and W0 bureaus. The JAs also frequently send cards via the bureau two or three months running, many QSL second and third contacts on the same band and mode. If there was an award for confirming Chiba prefecture 100 times, I'd have it.

Some amateurs spare no expense with their QSL cards, but I rarely take time to admire them when they first arrive. The first chore is cranking out the replies, and I'd rather be able to find the QSO information legible and logically placed than be distracted by the graphic artistry. Personally, I prefer to get cards with call sign and QSO information on the same side; it minimizes the number of times I have to handle the card to answer it.

It's also dubious that a fancy QSL card will improve your return rate. A busy QSL manager or DX station is not likely to sort incoming cards for answering based on

how pretty they are. But some cards naturally stand out for their style or humor. JR3NZC has my vote for best QSL, especially since I came across it halfway through a stack of a hundred or so JA cards. In haiku form, no less, it read:

*A JA card again!  
Yes, it's the rarest DX card  
indeed??? Hi Hi  
How lucky you are!*

It is easy to view SWL cards as more a nuisance than a pleasure, and some DXers must give answering them very low priority judging by the heartfelt pleas for a response gracing some of them. One SWL was his own worst enemy; I returned his erroneous card with a quick "Sri, can't cfm" note; he replied rather testily, suggesting I didn't know what I was doing and re-enclosed his QSL so I could atone for my sins. It gave me more than a bit of satisfaction to point out in further reply that his card was made out to the wrong call sign.

## The Gang at the YWCA

Most DXpedition accounts give credit to local hosts. This article would be sadly lacking if I did not sing the praises of the Singapore national society, the Singapore Amateur Radio Transmitting Society, SARTS. The sixty-odd licensed members are about equally divided between Singaporean and expatriate amateurs, and the monthly club meetings are a mini-United Nations of hamdom. David, 9V1RH, is the doyen of the expats, active in IARU activities and on the air. The Singaporean contingent, the backbone of the society, is itself a blend of Singapore's racial groups and active in promoting amateur radio to a government interested in fostering technical hobbies but uneasy about the proliferation of potentially uncontrolled radio transmissions. Selva, 9V1UV, the outgoing club president, needed all his considerable diplomatic skills to keep us all heading in the same direction. The expatriate contingent consists of (at least) Japanese, American, British, Australian, German, Dutch and Canadian hams. In a microcosm, SARTS represents the best of DXing—personal contact with people from far-away places who share your interests. If you ever get to Singapore, check in at 2000 local on the last Thursday of the month at the downtown YWCA.

## Coming Home and Reverse Culture Shock

The Singapore stint ended ignobly. My departure date was set for August 6, 1988, and I'd planned a few marathon sessions in the last few days to add a few countries, perhaps snag Vermont for SSB WAS, and add another oblast or two. It was not to be, however. On July 27 in the midst of a rag-chew with KB5JC/DU1, the bias supply went up in smoke and I was QRT a week earlier than planned. (If you're reading this, Steve, it wasn't intentional!) I sadly pulled down the antennas and gave away the contents of the junk box too big to mail back home.

An opportunity to operate from another country—or even from the other coast in the United States—is a golden one; the bands take on a new complexion and a new excitement. South America was rare for me from Singapore; it was only in the last two months there that I finally snagged an LU for my 40th zone. Tuning around the bands now from the US east coast, I hear prefixes from south of the border which sound as exotic to me now as they were usual before my Asian stint. It's still another fascination of a hobby which never loses its freshness, whether you're a 9V or a K0, a peanut whistle or a big gun.

But it's still better to be DX than to work DX. Anybody still love me now that I'm a K0 again?

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NM12CC N conn 1/2" corr. copper m/f.....	25.00
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1180 BELDEN 9913 very low loss.....	.52
1102 RG8/U 95% shield low loss foam 11ga.....	.36
1110 RG8X 95% shield (mini 8).....	.19
1130 RG213/U 95% shield mil spec NCV jkt.....	.39
1140 RG214/U dbl silver shld mil spec.....	1.85
1705 RG142B/U dbl silver shld, teflon ins.....	1.50
1310 RG217/U 50 ohm 5000 watt dbl shld.....	1.05
1450 RG174/U 50 ohm .100" od mil spec.....	.14

### ROTOR CABLE-8 CONDUCTOR

8C1822 2-18ga and 6-22ga.....	.21/ft
8C1620 2-16ga and 6-20ga.....	.39/ft

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NE720 Type N plug for Belden 9913.....	\$3.95
NE723 Type N jack for Belden 9913.....	4.95
PL259AM Amphenol PL259.....	.89
PL259TS PL259 teflon ins/silver plated.....	1.59
PL258AM Amphenol female-female (barrel).....	1.65
UG175/UG176 reducer for RG58/59 (specify).....	.22
UG21DS N plug for RG8,213,214 Silver.....	3.35
UG83B N jack to PL259 adapter, teflon.....	6.50
UG146A SO239 to N plug adapter, teflon.....	6.50
UG255 SO239 to BNC plug adapter, Amphenol.....	3.55
SO239AM UHF chassis mt receptacle, Amphenol.....	.89
UG175/UG176 silver plug.....	.45
UG88C BNC plug RG58,223,142.....	1.45

### GROUND STRAP-GROUND WIRE

GS38 3/8" tinned copper braid.....	.35/ft
GS12 1/2" tinned copper braid.....	.50/ft
HW06 6ga insulated stranded wire.....	.35/ft
AW14 14ga stranded Antenna wire CCS.....	.14/ft

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# CQ REVIEWS: The Diamond SX-600 Wattmeter/SWR Bridge

DAVE INGRAM\*, K4TWJ



The Diamond SX-600 Wattmeter/SWR Bridge. The unit covers 1.8 MHz to 70 cm, reads QRP and QRO, and indicates both average and peak RF levels.

**A** recently introduced item with several attractive features for HF and VHF operators alike is the Diamond Antenna Model SX-600 average and peak-reading wattmeter/SWR bridge. This little gem is ideal for checking how your antenna and rig are "perking," and it covers the full spectrum from 160 meters through 70 cm without any extra modules or adapters. Everything is in one neat-looking little cabinet. Impressive? Yes indeed!

If you work both low and high bands, operate fixed or mobile, the SX-600 can easily prove a very worthwhile investment in assuring top performance from your setup. It is made in Japan and imported to the U.S. by the R.F. Parts Company.

## A Three-In-One Unit

The Diamond SX-600 is packaged in a professional-looking black cabinet measuring 3.1"H x 4.7"W x 4.5"D. Follow along with the photo and I will explain its various functions.

First, the front-panel meter has an upper scale for reading SWR and lower scales for reading RF power levels. A switch right below the meter selects full-scale ranges of 200, 20, and 5 watts (dandy for checking those homebrew QRP projects; differences of 700 milliwatts and 1 watt are even noticeable). An adja-

cent panel switch selects RF power or SWR functions, and a third panel switch determines whether forward or reflected wattage is indicated on the meter. Directly beside the SWR bridge's "calibration" control is a switch for selecting average or PEP power readings. Finally, a switch on the SX-600's rear panel selects its sensor 1 for reading 1.8 to 140 MHz parameters or sensor 2 for checking 140 to 525 MHz levels.

Four rear-mounted SO-239 sockets (for input and output of HF and VHF) are included so you can leave two rigs permanently connected through the SX-600 and select measuring functions via the rear-panel switch. That feature is quite useful if, like me, your station's desk includes both low-band and OSCAR setups plus QRP gear. In fact, the SX-600 really serves three purposes in its single cabinet.

## Using The SX-600

Once you install a multi-purpose wattmeter/SWR bridge like the SX-600, you will wonder how you ever got along without one. It eliminates a number of small boxes that typically clutter a shack, and really brings everything together into a smooth-operating system. If your shack is dimly illuminated or if you install the SX-600 in your car, 12 volts can also be applied to a rear socket for lighting its meter and sensor-indicating LEDs. Clever!

If you have been using a favorite old wattmeter, you may also be rather surprised at your true output power levels.

We all have a tendency to accept faithful meter readings at face value, but components' age and calibrations change. Items like the SX-600 have a definite way of bringing us back to reality! I thought my Drake W-4 was a tad high on its readings, for example, but I did not realize that the error was almost 15 watts!

Another eye-opening point involves measuring the effectiveness of a speech processor and a transceiver's peak RF output power. Watching the SX-600's meter while switching your rig's processor on and off gives a visual indication of its added "talk power." Using the SX-600 in conjunction with your rig's ALC meter is also super convenient for determining optimum mic and processor control settings. It may not be as accurate as using a scope, but it's close!

If you pursue OSCAR satellite activities with "bare bones" equipment (like a transverter and a popular "no meter" amplifier), you will really appreciate the SX-600's benefits. The little gem is handy when adjusting both 2 meter and 70 cm antennas for low SWRs, and its wattmeter is a great asset when varying power levels. Then, too, there are many times when getting a good signal into the satellite is quite difficult and knowing your uplink power is "going out" is reassuring!

Frankly, I continue finding useful applications for the SX-600 every day. My mobile 2 meter Avanti antenna needed retuning after moving it to a new car. A new wire vertical was added to the home station last week—more SWR checks. I am now putting together another antenna for portable use—again SWR checks needed. Have you noticed how your 70 cm antenna's SWR is affected by rain? Wow! The list of applications for a good wattmeter and SWR bridge is endless, but I think you get the point. They are not expensive "frills," but good test units that stay with you many years. Every amateur should have at least one.

## Conclusion

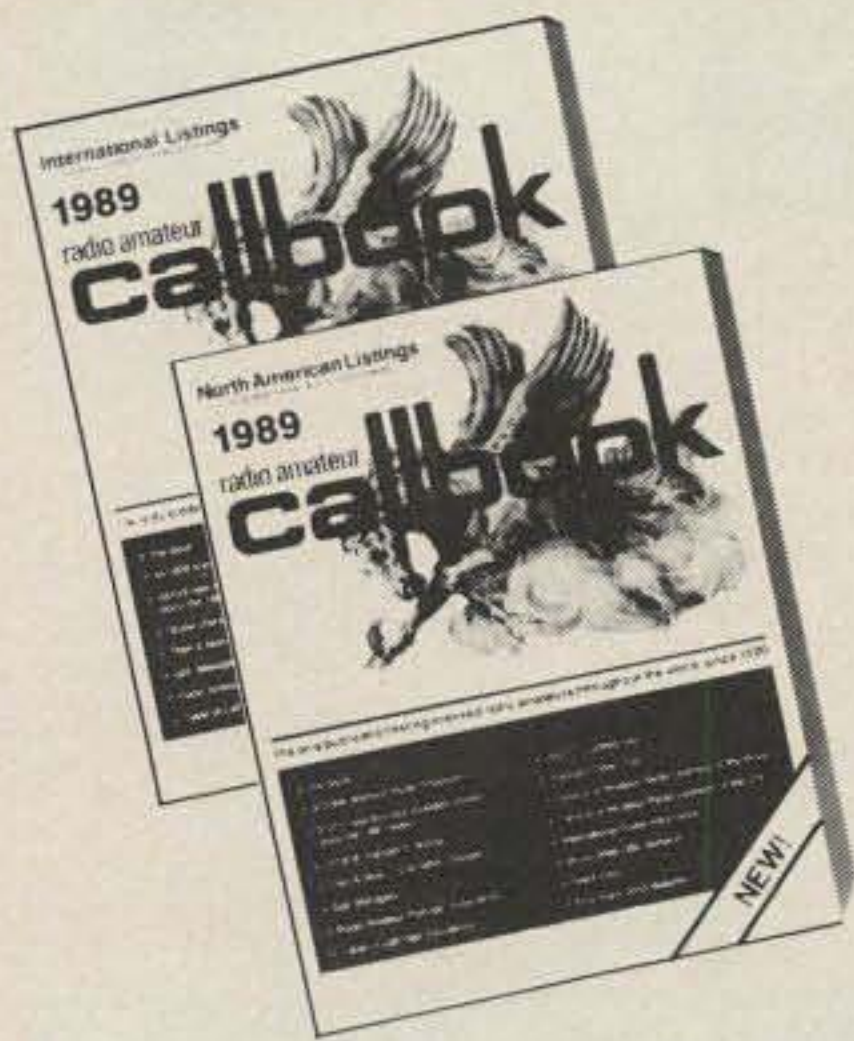
Diamond's SX-600 Wattmeter/SWR Bridge is an impressive unit. It is unusual (and most appreciated) to find one unit that covers HF to UHF with high- and low-power ranges plus average and peak RF readings. It is priced at \$139.95. For more information on the SX-600, contact RF Parts Company, 1320-16 Grand Avenue, San Marcos, CA 92069.



\*Eastwood Village No. 1201 So., Rt. 11, Box 499, Birmingham, AL 35210



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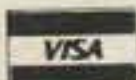
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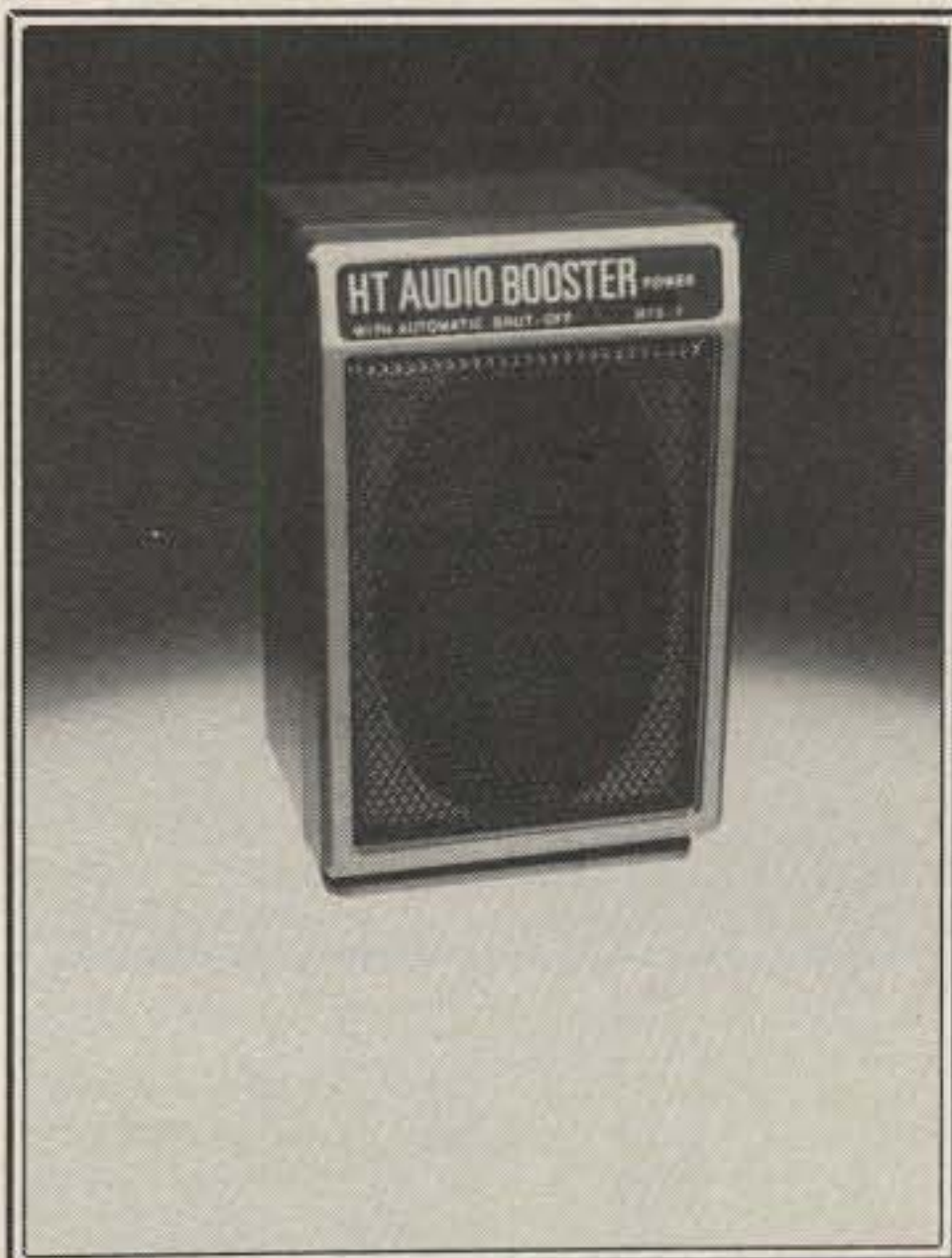
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# CQ Showcase

## Naval Amplified Speaker

Naval Electronics has announced the HTS-1 Amplified Speaker with special features for handheld radios. The unit has a 3½ inch oval speaker and 10 dB internal amplifier. Powered from internal batteries or any external voltage from 6-15 VDC through a DC jack, the HTS-1 has a built-in nickel-cadmium battery charger and an "automatic shut-off" feature that kills power to the amplifier whenever there is no input radio to conserve batteries.



The HTS-1 has a tilted base for desk mounting and a mobile harness is available for mounting the unit on the inside of a car door. A 5 ft. cable with mini-plugs and a stereo-to-mono converter are included. Cost is \$29.95. For more information, contact Naval Electronics, Inc., 5417 Jetview Circle, Tampa, FL 33634, or circle number 110 on the reader service card.

## Azimuth WeatherStar

Azimuth's WeatherStar Model TWR-3 by Digitar gives the ability to monitor weather conditions affecting your antenna system and shack. The TWR-3's standalone computer with LCD readout gives wind direction (2 or 10 degree increments), wind speed, high wind gusts, external temperature, wind-chill factor, low temp/high temp, plus time and daily and yearly rainfall with optional self-dumping rain collector (\$49.95). The unit's scan mode lets you see the data in any sequence you wish.

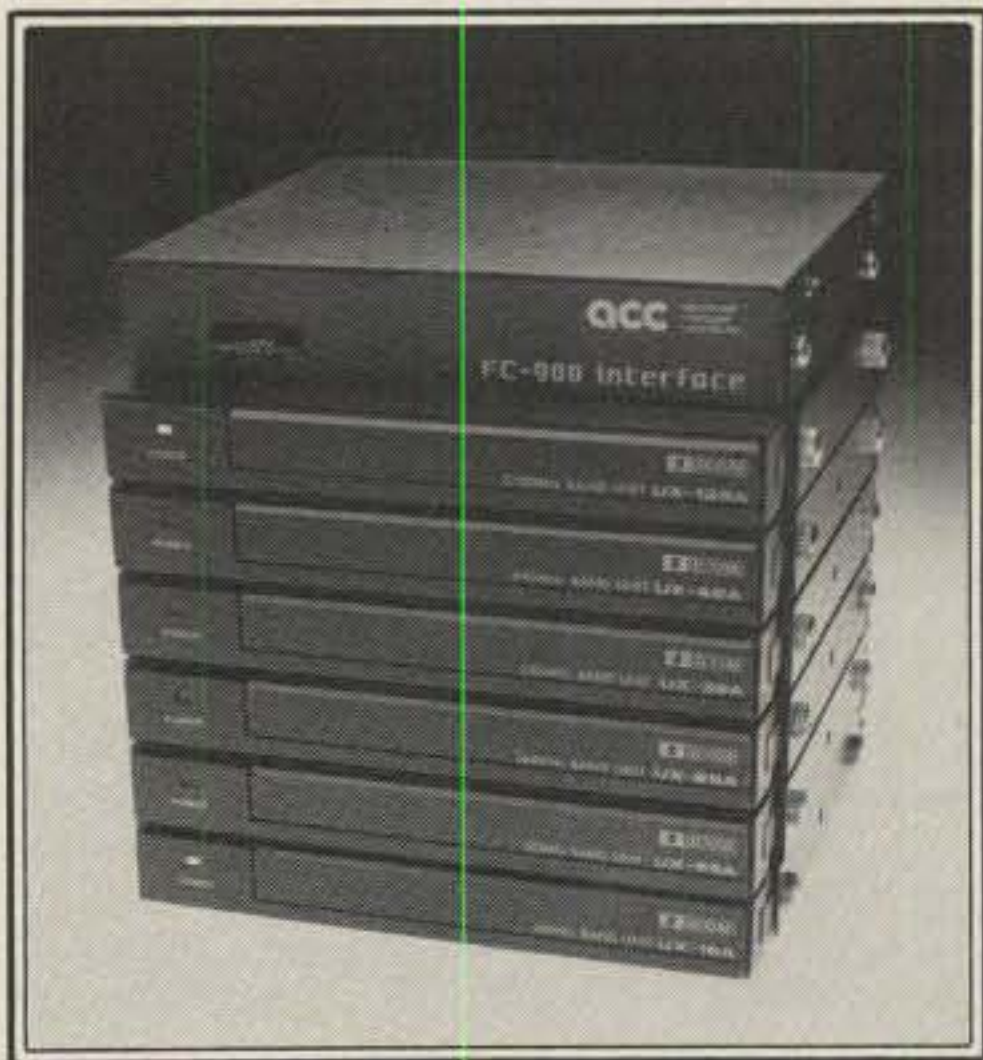
The TWR-3 operates on 3 AAA batteries. Available are an optional AC adapter, nickel-cadmium battery pack, and desk stand. Comes complete with wind vane, anemometer, weather computer



unit, and 40 ft. control cable (extendable to 200 ft.). The TWR-3 is \$159.95 (plus \$4.95 s&h; \$17 shipping foreign orders). For more information, contact Azimuth Communications Corp., 11845 West Olympic Blvd., Suite 1100, Los Angeles, CA 90064, or circle number 111 on the reader service card.

## ACC FC-900 Interface

Advanced Computer Controls has announced the FC-900 Interface which is supported by several of ACC's repeater controllers. The FC-900 permits use of the ICOM IC-900 transceiver band units as remote base and link transceivers.



The ICOM fiber-optic controller and interfaces aren't needed, just the band units. Everything just plugs together. Full remote frequency control is available through touch-tone commands. Amateur frequencies on 6 bands from 29 MHz to 1300 MHz are supported. Remote bases and links allow the repeater system designer to extend the range of the repeater, link it to other repeaters for emergency and public-service activities, and benefit from the elevation of the repeater site for all bands.

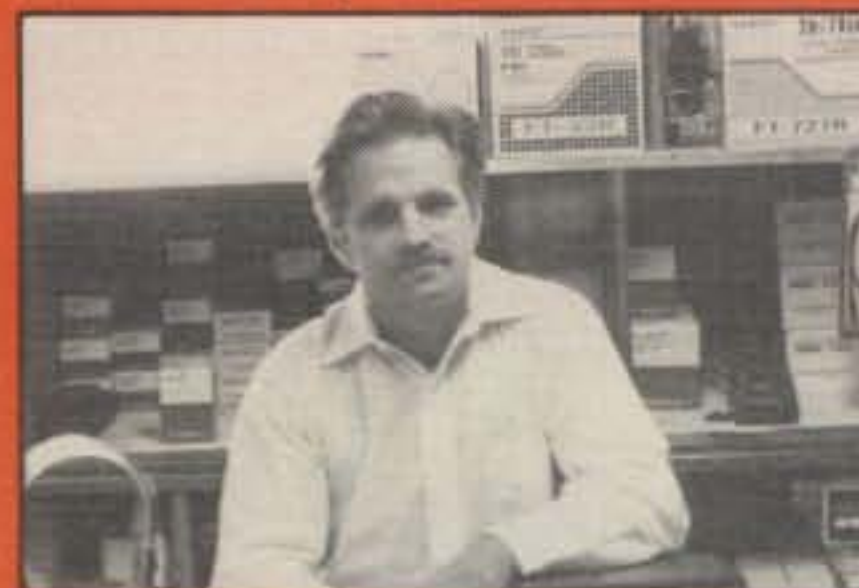




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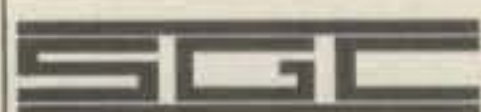
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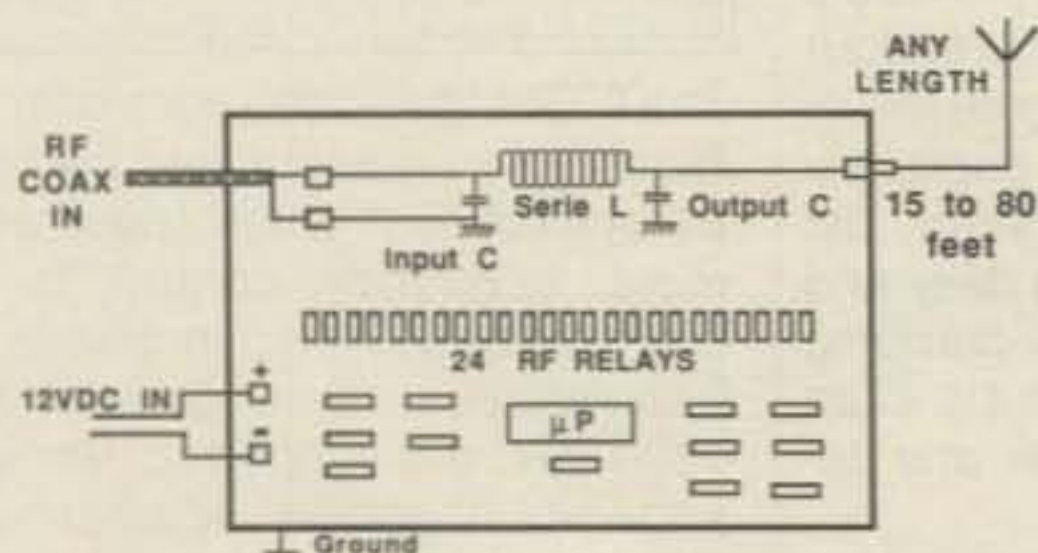
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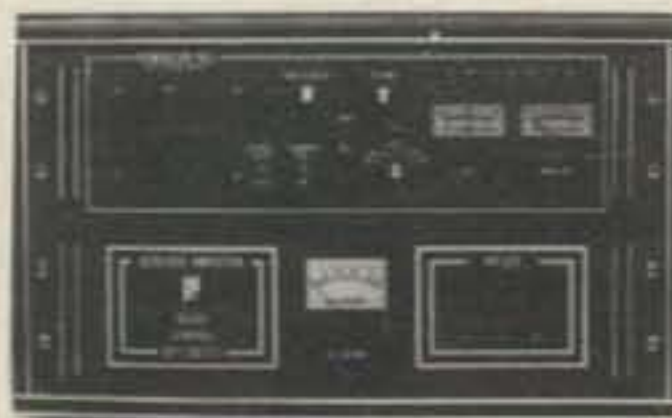
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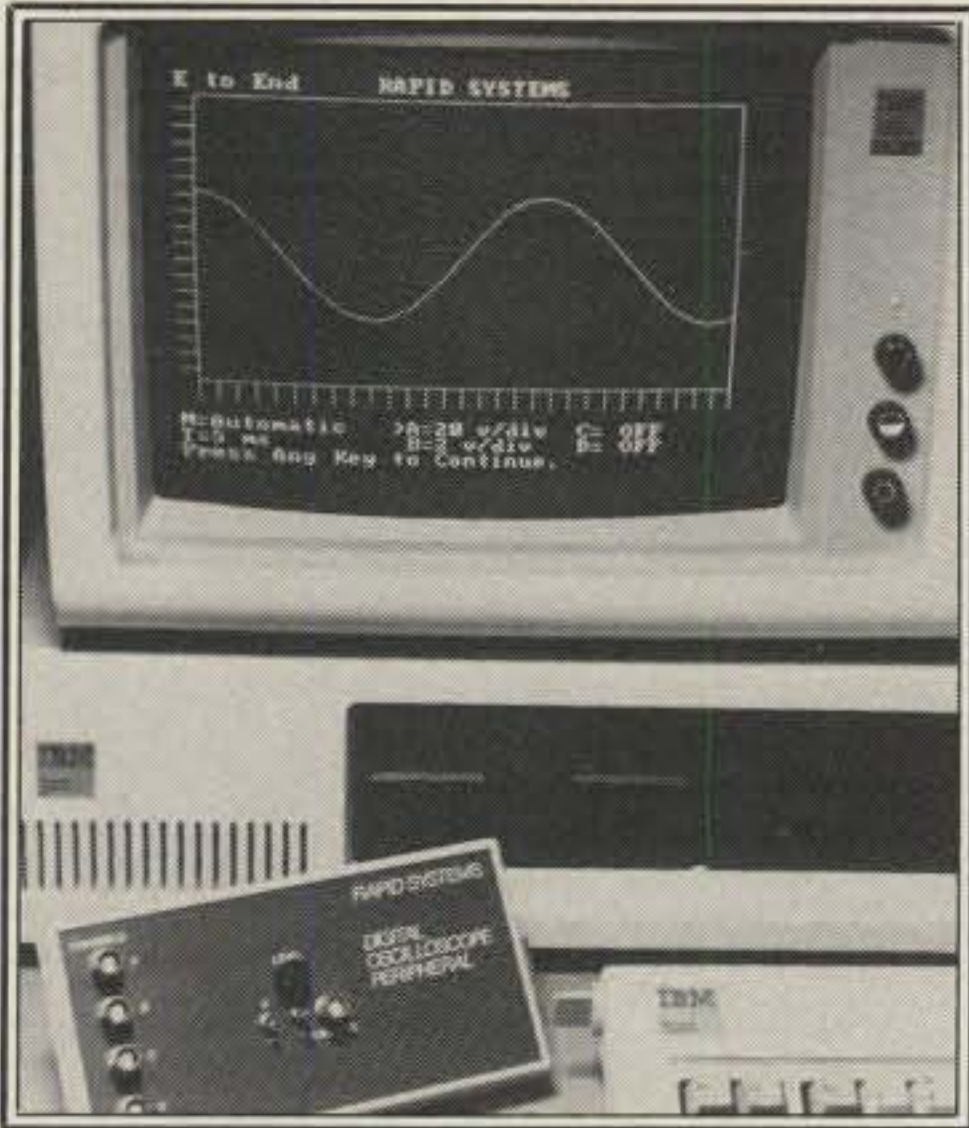
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Price of the FC-900 Interface is \$225. An optional programmable CTCSS encoder is \$25. For more information, contact Advanced Computer Controls, Inc., 2356 Walsh Ave., Santa Clara, CA 95051, or circle number 113 on the reader service card.

### Rapid Systems Digital Oscilloscope Peripheral

Rapid Systems' R414 Digital Oscilloscope Peripheral for IBM PC/XT/AT and compatible computers comes complete with hardware and software, including source code. You can turn your PC into a four-channel data acquisition unit with selectable sample rates from 1 kHz to



500 kHz. Features include 8-bit A/D converter; 2048 point data memory; external or internal analog triggering; BNC connectors; diode protected inputs; user programmable in C, Turbo Pascal, or BASIC; executable routines for waveform capture and display; and sample program listings in users manual. Options include enhanced oscilloscope display software, spectrum analysis software, and digital signal-processing hardware.

For more information, contact Rapid Systems, 433 North 34th Street, Seattle, WA 98103, or circle number 105 on the reader service card.

### ComTek Phased Array Switch

ComTek has introduced a switching system, the ACB-4, that allows the operator to "point" and control a "four-square" antenna. The classic "four-square" antenna consists of four verti-



cals placed in the corners of a perfect square. Each side of the square is  $\frac{1}{4}\lambda$  long. Directivity of the signal is accomplished by varying the phase of the feed to each vertical. The "four-square" antenna is highly regarded among the low-band DX crowd, but the design can be used for any band.

The system is available, less the antennas, from ComTek. All power division and phasing is done with the use of toroids. Phase distribution is held to within 5 degrees, and power division less than 1 dB of imbalance. Relays have 10 amp contacts and are gold-plated. All metal is

steel and zinc plated with gold chromate irradiate coating for long life and weatherproofing. The system will also work to give the correct switching for two elements. No modifications are needed. The ACB-4 can be used on any band. The user need only supply four 75 ohm cables that are a quarter-wave long, a three-conductor control cable, and the antennas. The ACB-4 switchbox with control box sells for \$260. Optional system parts are available. For more information, contact ComTek, P.O. Box 202, Hopkinton, MA 01748, or circle number 114 on the reader service card.

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A LOOK AT THE SHACK FROM BOTH ENDS OF THE COAX

## Books for the Ham Shack

**T**his month we turn to the bookshelf for an update on hamshack reading matter we think you'll like. Following that, we'll stir up some antenna potpourri and corral some more software. First, let's pull down a few interesting books from the bookshelf.

### Books for the Ham Shack

**Two from John Kraus.** There probably are few books that are as respected in their fields as John D. Kraus, W8JK's *Antennas* and his *Radio Astronomy*. Dr. Kraus is well known as the Director of the Radio Observatory and McDougal Professor Emeritus of Electrical Engineering at Ohio State University.

*Antennas* is in its second edition. It is a comprehensive "bible" of antenna theory and practical design applications, a text and reference having over 1000 illustrations and nearly 600 worked-out examples and problems. The 917-page, 18-chapter hardcover engineering text is \$51.95 and includes diverse topics such as basic antenna concepts, loops, helical antennas, dipoles, biconical and cylindrical antennas, slots, horns, log-periodic arrays, feeding considerations, and antenna measurements.

Dr. Kraus's other classic text is *Radio Astronomy*, also in its second edition. All of the basics of the first edition are retained, but with new material on contemporary topics such as holographic measurements, low-noise FET amplifiers, interstellar molecular clouds, Jupiter and Io, comets, pulsars, and several other topics that are way over my head. The 710-pager includes hundreds of illustrations, worked-out examples and problems, and references for the user. It's \$39.95.

Both of these classics are available from Cygnus-Quasar Books, P.O. Box 85, Powell, OH 43065; shipping is \$2.50 per book. The same firm also distributes three of Dr. Kraus's other books: *Electromagnetics* (800 pages, \$52.95), *Our Cosmic Universe* (297 pages, \$9.50), and *Big Ear* (228 pages, \$4.50).

**Electronic Technology Today.** This Massapequa Park, New York publisher recently came out with a handy, 36-page, pocket-size electronics book catalog featuring mostly their own books, but also selected books from TAB and other publishers. Included in their catalog are numerous books on antennas, circuits, construction projects, data, shortwave radio, amateur radio, antennas, audio and stereo, theory and calculations, electronic and computer music, video, computers and computing, and fault-finding (getting electronic projects working).

The catalog lists five paperback antenna construction books, mostly of interest to broadcast-band and shortwave listeners, but it also includes one amateur antenna book, *Simple Amateur-Band Aerials*, by noted Popular

*Communications* columnist Ed Noll, W3FQJ (80 pages, \$5.50). Several general communications, amateur radio, and SWL titles are also listed. The pocket-sized book catalog is available for free from Electronic Technology Today, Inc., P.O. Box 240, Massapequa Park, NY 11762-0240.

**History of QRP in the U.S., 1924-1960.** This is the latest from Adrian Weiss, W0RSP, CQ's own QRP Editor of long standing. Ade's book represents a very well-researched reference text as well as an excellent guideline to finding out what QRP (low power) operation is all about. It also has some interesting stories about flea-power operation in "the old days" tossed in, including material on the early radio pioneers. Too, the material on homebrew equipment is enough to make you want to "roll your own" without further delay. I like Ade's neat dedication of the book. It's "dedicated to those who have shared their experience and knowledge with others; who have led, like Kruse, Hatry, Schnell, Handy, and Battey; numberless QRPers who have endured against the odds; and unsung heroes, the receiving operators, who make QRP possible."

Coming in at 200 pages, Ade's \$10.95, 11-chapter paperback is literally chock full of historical data on the QRP world, more than we can do justice to here. Though profusely illustrated with photos and circuit diagrams, the print is small, however, so get out your reading glasses for this one!

Some of the major topics include Ade's own amateur radio background (as K8EEG and later as W0RSP); the early days of spark and CW; amateur pioneers of the 1920s; surveys of the 1930s and 1940s in radio communications; and the 1945-1960 "before the transistor" era, to sample just a few topics. Ade's *History of QRP* book is published by Milliwatt Books, 833 Duke St. No. 83, Vermillion, SD 57069.

Ade also tells us that he's planned a book on a subject dear to my heart for 1989: *The QRP's Guide to Transmission Lines/Antennas, Propagation and DX'ing*. This promises to be a detailed comprehensive look at antennas for flea-power operation as well as ionospheric propagation and its application to QRP work. It may be too late by the time you read this, but Ade indicates that he's looking for data and insights gained by QRPers for possible publication in the new book.

**Two from K4TWJ.** Fellow CQ colleague Dave Ingram, K4TWJ, has capitalized on the trend to desktop publishing by self-publishing his latest two books, *Golden Classics of Yesteryear* and *Oscar Satellite Revue*. According to Dave, these types of books lend themselves quite well to "rolling your own"; doing so saves a lot of the hassles and expense of regular publication. This means that the books can be put on the market a good deal faster than otherwise and at lower cost.

*Golden Classics* is a 60-pager in 8½" x 11" format that strives hard to allow the reader to

recapture the original thrill and excitement of amateur radio, where "every turn of the dial and every night's operation was a thrilling new experience." The book is a collection of real-life tales, rig views, all-time favorite circuits, keys, and bugs of all kinds from romantic days past. Incorporated in the book are several weekend construction projects especially selected for their authentic appearance and suitability for operation on today's amateur bands—including 30 meters, where Dave's having a blast running classic QRP rigs. Chapters feature equipment from the early 1900s spark rigs through early 1960s vintage Heathkits and 6L6 one-tubers. The book is \$10 plus \$2.00 shipping and handling.

Dave's companion *Oscar Satellite Revue* is a 40-page guide to satellite setup and success written in nontechnical, easy-to-understand language. It contains widely requested reprints of Dave's CQ articles on setting up various types of OSCAR stations and operating via satellite; to ensure currency, each original article is followed by an updating addition. Ready-to-use frequency conversion charts for all satellite modes and useful tracking notes are included; these cover the new OSCAR 13, OSCAR 10, JO-12, RS-10, and RS-11. The book includes a quick-start guide for newcomers, along with up-to-date Keplerian data for computerized tracking programs. It's \$7.00 plus \$2.00 shipping and handling.

Either book may be ordered directly from Dave Ingram, K4TWJ, Eastwood Village No. 1201 South, Rt. 11, Box 499, Birmingham, AL 35210.

While speaking of OSCAR 13, Dave has done a yeoman's job explaining the new satellite's operation, including detailed antenna and equipment requirements, in a multi-part series beginning last November in his CQ "World of Ideas" column. If you have an urge to investigate out this new "super satellite," check out Dave's series for all you need to know about using it.

**DX Around the World.** CQ's own DX Editor, Hugh Cassidy, WA6AUD, reports that noted European DXer Franz Langner, DJ9ZB, has published a new book with the title *DX Around the World*. Franz's book is a reference aimed at what might be termed everyman's "needy DXer"—the operator who needs all the information he can get.

The new DX reference book is arranged in alphabetical order of callsign prefixes, and it shows every country by geographical location. It depicts either an outline of the geographic limits, or for islands, photos of the island. In addition, a QSL card or a photo of one of the country's DXers is shown. Also included is the name of the country's licensing authority and its address. The book should be of particularly good value to any amateur planning a trip to a given area.

For pricing and shipping information, contact Franz Langner, DJ9ZB, Box 150, 7637 Et-

317 Poplar Drive, Millbrook, AL 36054



tenheim, Federal Republic of Germany.

**Shortwave Receivers Past and Present.** This 1987 book by Fred J. Osterman is a useful 104-page directory of the vital statistics of more than 200 communications receivers marketed over the past 20 years by a variety of American and foreign equipment manufacturers.

A handy reference guide, it includes photos of the majority of the receivers it lists, and it contains key data such as general specifications and circuit information, physical dimensions, frequency coverage and display, available accessories, and the like. Also included is a chart showing the new and used cost of each set the book covers. The authoritatively researched and concisely written "blue book" is \$6.95 plus \$1.00 shipping from Universal Shortwave Radio, 1280 Aida Drive, Reynoldsburg, OH 43068.

**The Radio Collector's Directory and Price Guide.** While we're into the area of old-time radio stuff, here's a book that should be of interest to radio historians, media buffs, and antique collectors alike. The book, by Robert E. Grinder and George H. Fathauer, is a major reference showing broadcast receivers from 1929.

It is divided into three parts. Part I covers the early history of radio broadcasting and manufacturing in the United States. Part II is an authoritative listing of receivers by manufacturer and model number, including most of the pertinent specs and features; where available, estimated market value is listed. Part III is a two-section trade directory listing used to properly distinguish manufacturers and trade names—a far more difficult job than most people imagine.

The 321-page softcover is \$15.95 from Ironwood Press, P.O. Box 8464, Scottsdale, AZ 85252.

**Three from W1FB.** Doug DeMaw, W1FB, has been heavily involved with both QRP and antennas for many years. One of his newer books is the *Novice Antenna Notebook*, an easy-to-understand antenna "how-to-do-it" for the newly licensed amateur. Aimed squarely at the non-engineer and written in clear language, the book has an emphasis on antennas that are reliable performers and at the same time are easy to build. Some areas covered are how antennas operate, what affects their performance for short- and long-distance communications, effects of antenna height above ground, radials and grounding systems, feedlines and matching, and other topics of primary interest to the beginner but also good reading for "upperclassmen." Antenna dimensions for Novice and Technician band use are included. The 1988 softbound book is \$8.00.

Another is *W1FB's Antenna Notebook*, which is aimed at all levels of antenna interest and skill. The 120-page illustrated book covers a wide variety of antenna designs that the author has worked with, and its many illustrations include how-to instructions on a number of practical wire and vertical antennas from 160 through 10 meters. The book also covers important information on antenna tuners, baluns, impedance transformers, and radial and ground systems. It's \$8.00 also.

A third W1FB book of interest is the *QRP Notebook*, a helpful book for the QRP (low power) enthusiast. The *Notebook* constitutes a good, solid reference on circuits especially suited to QRP work, including thorough but easy-to-understand discussions on how and why the circuits work as they do. It's priced at \$5.00.

The DeMaw books are available from the



This photo shows the Carolina Windom kit offered by The Radio Works. The antenna makes use of a 133 foot horizontal flattop and a 22 foot vertical radiator; it is rated at 1500 watts SSB or CW.

ARRL, 225 Main St., Newington, CT 06111. (The ARRL charges \$2.50 per book for "book rate" shipping, or \$3.50 for shipping via insured parcel post or UPS.)

## Antenna Potpourri

**New from Antennas West.** Jim Stevens, KK7C, tells us that he follows our column closely; he wrote following up on our mention of his QRV product line in last July's issue. I guess Jim got a lot of mail since we mentioned his policy of minimizing customer risk—all you need to do if you're dissatisfied with his antenna for any reason is to repack and return it for a refund.

In that issue we mentioned several products, including the novel QRV 160-10 Emergency Pack antenna, which includes a "Quick Launcher" system for hanging wire antennas quickly from available supports up to 75 feet in height. Jim notes that he's now brought out similar emergency antenna packs for 80-10 meters and 40-10 meters. All of these are complete and ready-to-use kits which include the antenna, launcher, support lines, and coax. Originally designed for use by an international relief organization, the antenna kits are quite popular for temporary, emergency, and Field Day use.

Another new product is a G5RV kit known as the QuickKit G5RV. The G5RVs are designed for quick installation in less than a half hour using simple tools; no measuring or cutting is required to install them. A novel product, the QuickKit G5RVs come in three sizes. The half-size version appears to be the most popular version, with the full- and quarter-size models vying for second place. Jim advises that because of their small size and multiband design, many of the QuickKit G5RV antennas have found their home in attic and apartment installations.

The full-size kit covers 80-10 meters and is \$34.95, while the half-size version covers 40-10 meters and is \$24.95. The quarter-size model is \$19.95 and covers 20-10 meters.

For more information on Jim's antenna product line, write for an information pack from Antennas West, P.O. Box 50062, Provo, UT 84605.

**The Radio Works.** Jim Thompson, W4THU, sent us some background information on his firm, The Radio Works, whose ads you probably have seen in the major amateur journals. Jim advises that he's been involved in building wire antenna systems along with a broad line of general- and special-purpose high-power baluns since 1984. Jim's thesis is that having fun and putting out a big signal on the air doesn't necessarily involve expensive towers and beams, and his catalog reflects that philosophy.

Jim's catalog is free for the asking and constitutes a good reference source for the antenna builder. The most recent one I have is 40 pages in length. It covers just about anything anyone could possibly need to put together his own wire antenna, including insulators, sealant, antenna tuners, surge protectors, mounts, guy rope, wire and cable, and connectors—plus a nice assortment of antenna books. The catalog features both his own balun and preassembled antenna lines (Windoms, loops, double Zepps, G5RVs, etc.) as well as prefab systems from other manufacturers.

Jim's balun line is both unusual and extensive. He furnishes at least 10 different models at present, each fulfilling a specific design objective. Many of the models use internal L/C compensating networks to achieve the widest possible operating bandwidth with low SWR. Two unique products are the Remote Balun and the B4-2KX "Big Balun." These baluns use his double core "X" design which he indicates provides excellent balance and wide bandwidth along with high feedline isolation.

Another of Jim's major products is the Carolina Windom, a modification of the perennially favorite off-center-fed multiband wire antenna. The Carolina Windom was developed by Edgar Lambert, WA4LVB; Jim Wilkie, WY4R; and Joe Wright, W4UEB. Although I haven't had the opportunity to put one of these through its paces, the antenna is getting some good press as an excellent 80-10 meter radiator.

The antenna consists of both a horizontal 133 foot and a vertical 22 foot coax radiator, a 4:1 balun, and a second 1:1 balun or "line isolator." The antenna is coax-fed with 50 ohm



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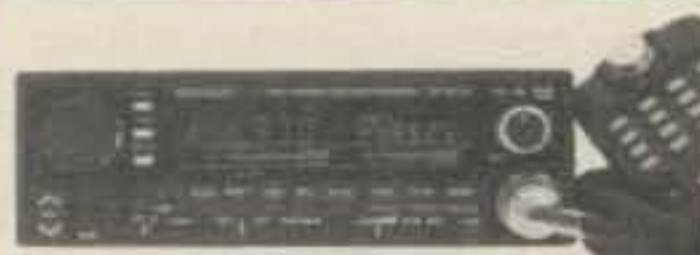
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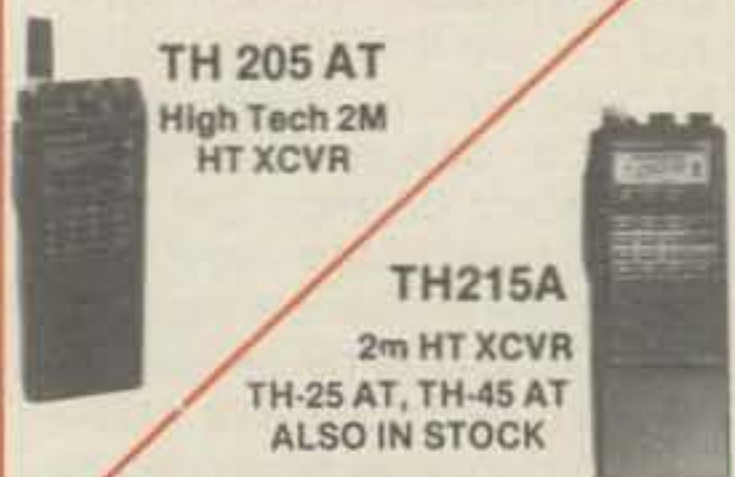


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RS35M	25	35	179
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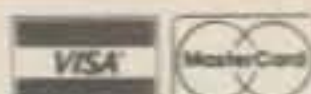
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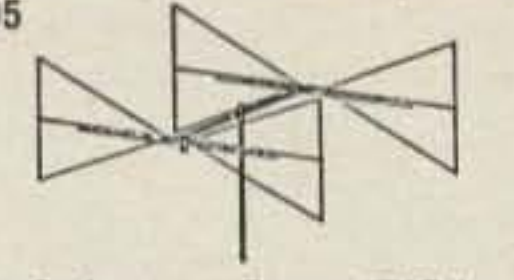
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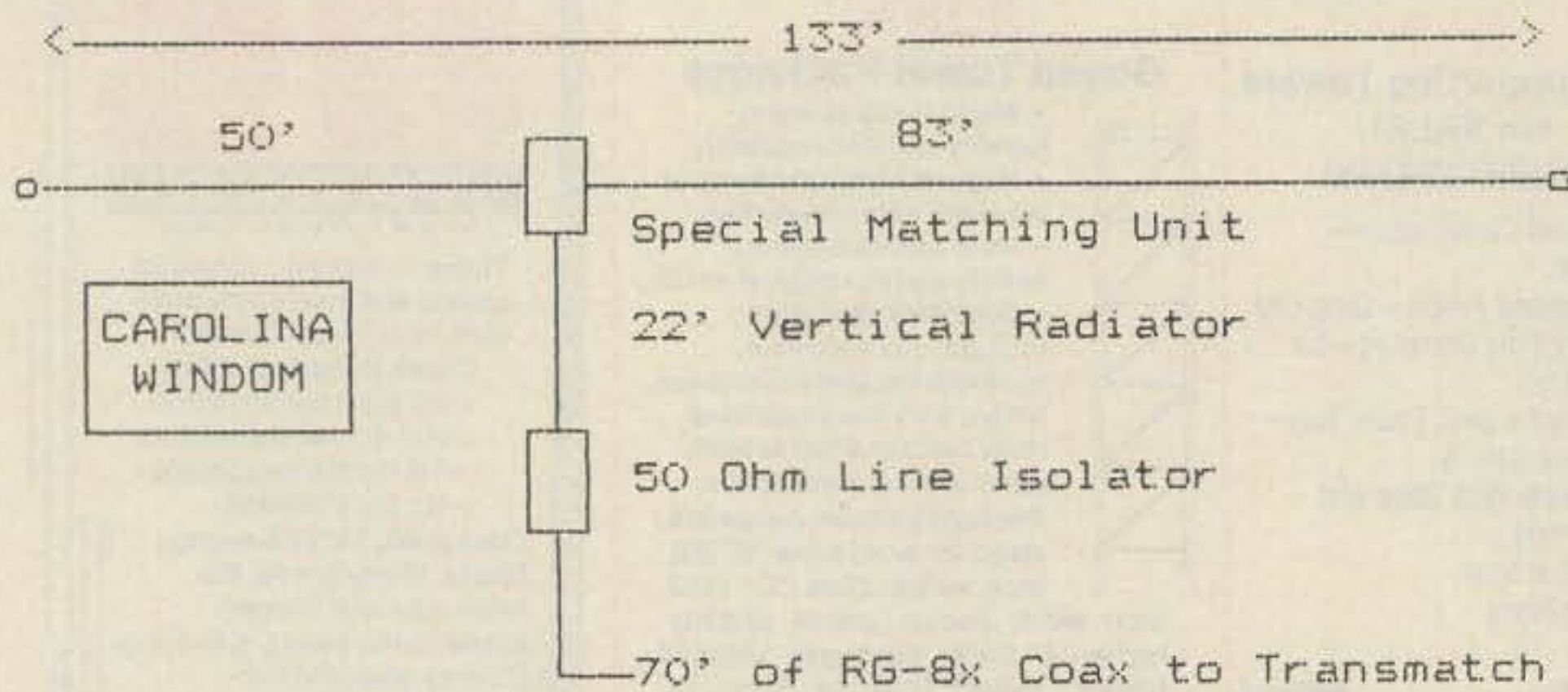
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\*\*\*\*\* CAROLINA WINDOM \*\*\*\*\*

Fig. 1—Shown here is the Carolina Windom kit, a combination horizontal flattop and vertical radiator for 80-10 meter operation. It's offered by Jim Thompson, W4THU, of The Radio Works. The antenna is described in this month's column.

coax; a transmatch is recommended for all-band operation. Jim asserts that much of the antenna's performance comes from the vertical wire section which helps make it a good low-angle DX antenna on 15 and 10 meters. The horizontal wire portion provides relatively high-angle radiation characteristics for medium-distance communications.

Fig. 1 shows the Carolina Windom; it's priced at \$75. For more detailed information on the antenna and a copy of their catalog, write to The Radio Works, Box 6159, Portsmouth, VA 23703.

**Duckbill Earth Anchors.** If you have a really big and heavy antenna system, you may experience problems in adequately securing the mast and tower guy lines to the ground. Duckbill Earth Anchors are used to secure any object that can be stolen, moved, or blown down by the wind—like antennas.

The Duckbill is available in different sizes and capacities for different applications. It's easy to use: one man drives the Duckbill with manual or hand-held power tools. The Duckbill is driven into the earth with a heavy hammer and steel drive rod, compacting the soil rather than disturbing it. An upward pull on the cable rotates the anchor into a perpendicular position in the ground, further compacting the soil. Since this method doesn't disturb the soil above the anchor, the "holding power" is high. According to the manufacturer, competitive anchors disturb the earth upon installation, it possibly taking several years before soil settling creates an undisturbed condition. Fig. 2 shows how the Duckbill works and its typical installation.

Four different Duckbill Anchors are available with "holding powers" of from 300 to 5000 lbs. Several drive rods are available. For

more information, contact Foresight Products, Inc., 10780 Irma Drive, Unit 22, Northglenn, CO 80233.

**Easiest-Up Antennas for 10 Meters.** Most everyone is aware that 10 meter propagation is on the upswing as we get higher on sunspot Cycle 22. Much of the increased 10 meter activity is attributable to Novices, who can use CW from 28.1 to 28.3 MHz and voice from 28.3 to 28.5 MHz. As we'll soon find out as the cycle builds, with 5 watts and a simple antenna you can attain DXCC on this perhaps easiest of the HF bands on which to work DX.

Antennas for 10 meters can be simple affairs, too, with a half-wave dipole or vertical only about 16½ feet and a quarter-wave vertical half that in length. If you hanker to try 10 with a minimum investment of time and money, consider using a commercial CB base station antenna. They're usually cut for around 27 MHz; altering them to operate on the low end of 10 meters normally means just clipping off a few inches.

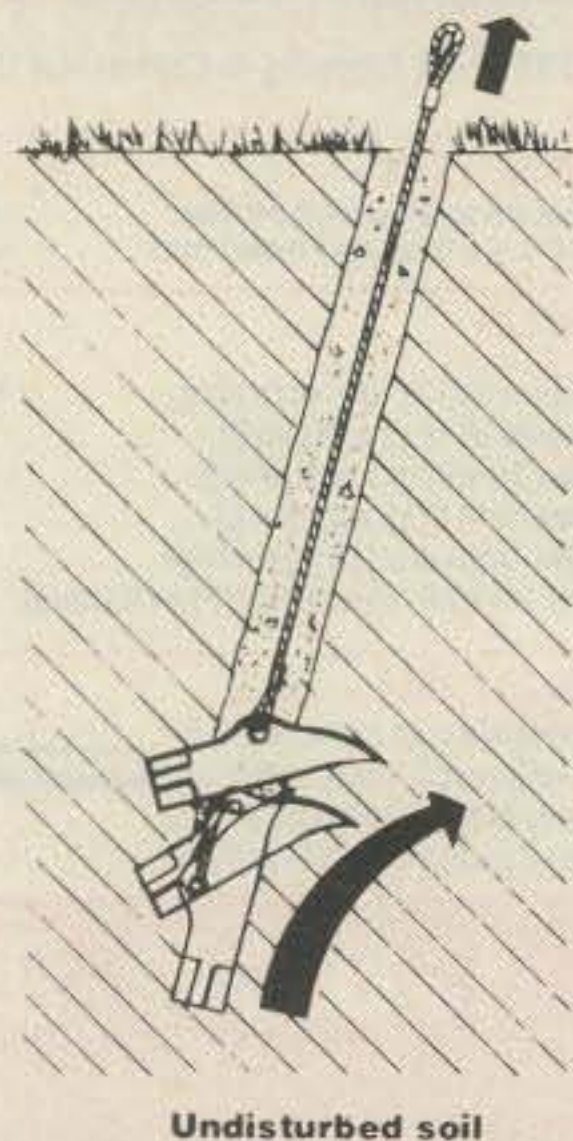
You can easily adapt a ½- or ¼-wave CB ground-plane vertical. I've had some success with a "recycled" vertical end-fed half-wave CB base station antenna. This type of vertical is end-fed by coax through a matching network; this design eliminates the need for radials. All you need do is shorten the antenna to about 16½ feet or so, attach it to a mast, feed it with coax, check the resonance and SWR, and you're in business.

Where to get these antennas? I see in the 1989 Radio Shack catalog that they presently show a half-wave CB antenna as No. 21-967. A new one is \$79.95, so consider checking around for a CBER in your area who isn't using his CB rig, and you may find yourself a bargain vertical. Another excellent, easy-up alternative is the inexpensive (\$50 price class) Cushcraft AR-10 10 meter FM Ringo antenna; it looks like the familiar VHF Ringos, only it's much larger. At the bottom line, half-wave verticals can work great, and they're easier to install than the quarter-wave variety.

Incidentally, Cycle 22 promises to be a winner as far as radio propagation is concerned.

## How Duckbill Works

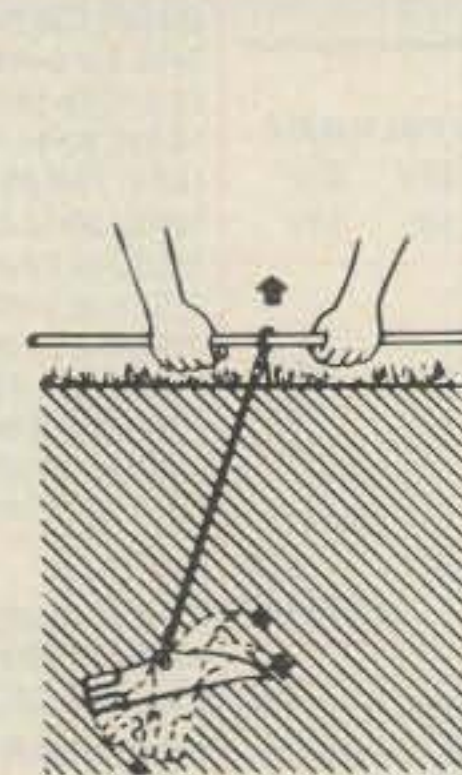
The Duckbill Anchor is driven into the soil using a hammer and drive rod. As the anchor is being driven it is actually compacting the soil around the anchor body. Once the anchor is to the proper depth the drive rod is removed. An upward pull on the cable rotates the anchor into load lock position. The anchor cuts into and further compacts the undisturbed soil. This method is far superior to conventional anchors that disturb the soil during installation.



## Installation



**1.** Using heavy hammer and steel drive rod, drive anchor into ground at desired angle until only top half of cable loop remains above ground. (One rod drives hundreds of anchors.)



**2.** Remove rod, pull up on cable. This rotates anchor into load lock position. Smaller models can be set by hand. Larger models require jack, come along or other device. Tie rope, cord or cable to loop, run it to object being anchored.

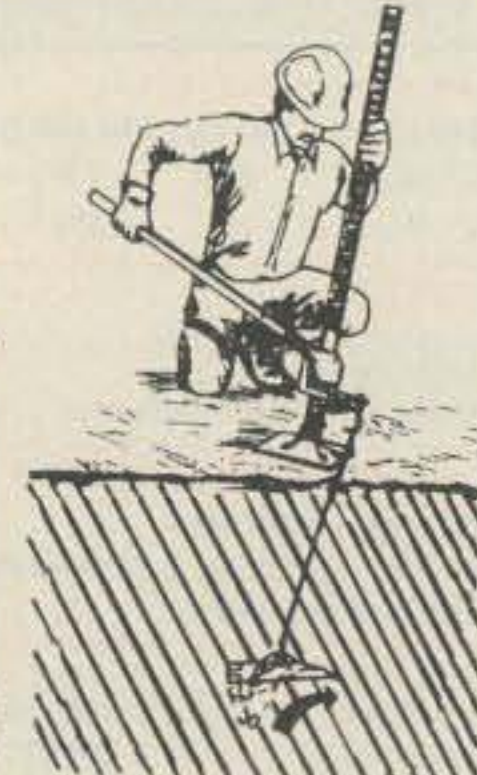
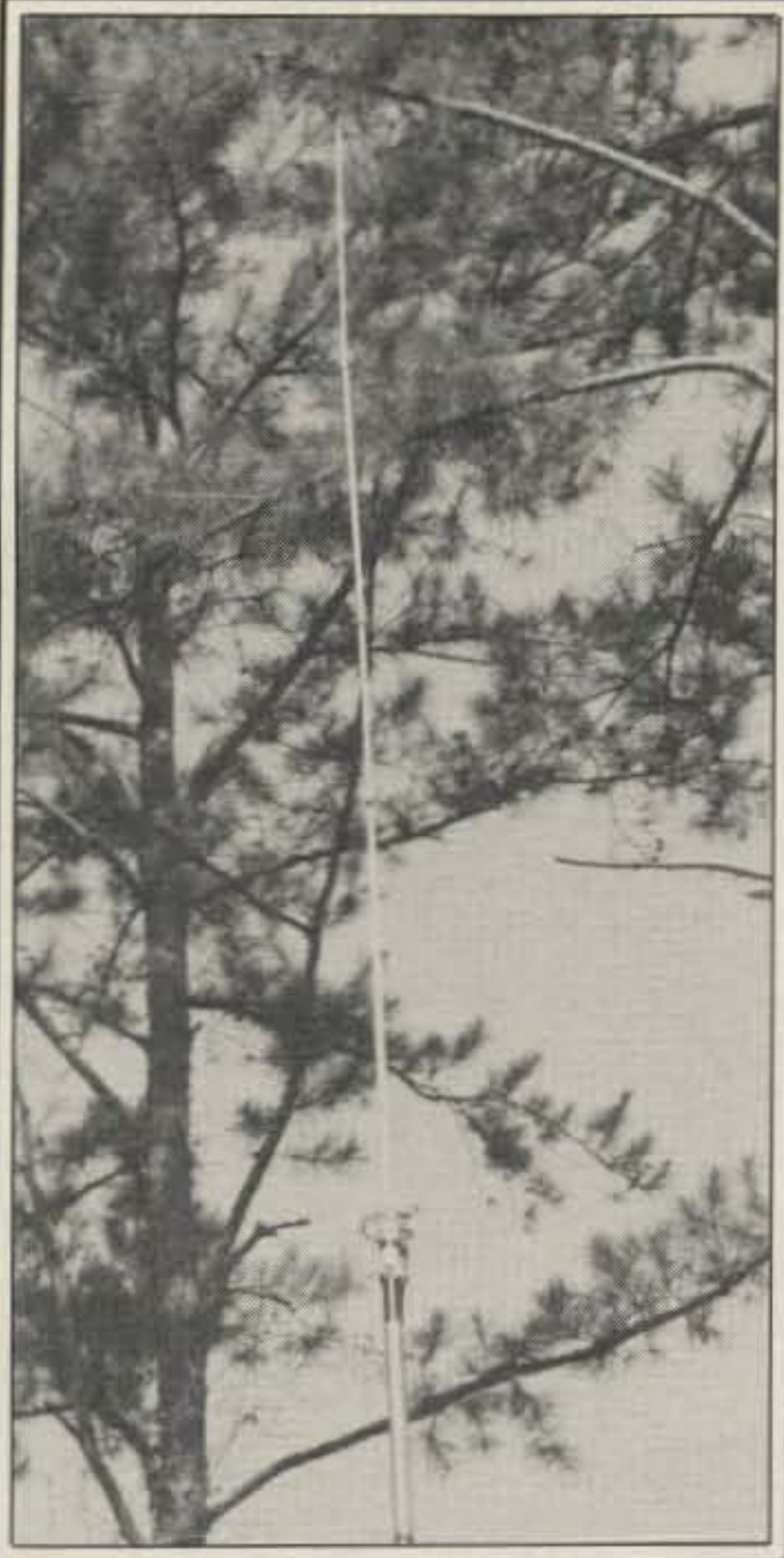


Fig. 2—These two sketches show the theory of operation and typical installation of the Duckbill Earth Anchors. The anchors are used to secure any object that can be blown down by the wind, stolen, or moved. Besides being used for antennas, the Duckbills are often used with trees, scaffolding, fences, signs, mobile homes, winches, masts, towers, sheds, and other objects.





Even nestled between the trees, the base-fed Cushcraft AR-10 does a creditable job on 10 meters. Consider a half-wave vertical for an easy-up antenna for 10 meter Novice operation. (W8FX photo)

The cycle is expected to peak sometime around mid-1990, and there's a good possibility that the cycle will peak at a smoothed sunspot number of 200 or higher; it's even possible that Cycle 22 will be the highest ever observed. This happy situation should result in outstanding worldwide radio conditions, especially on 10 meters where round-the-clock DX would be a commonplace occurrence. So let's get crackin' on 10!

### Software Snapshot

**K4PB Contest Programs.** Alan Harp, K4PB, sent us copies of his two contest programs that separately cover the CQ WW DX and ARRL DX Contests. Written in MicroSoft Quick Basic, the programs are designed for IBM-PCs with CGA, EGA, or VGA cards, and which have a recommended minimum of 512K memory. The CQ WW DX program is designed to operate from any zone or country, while the ARRL DX program is intended for W/VE operation only.

The two programs' features and operation are similar. Each contest-program package is made up of four sub-programs that allow you to (1) enter data giving your callsign, country, and other data appropriate for the particular contest; (2) enter logs into disk files; (3) call a log modification program to delete, insert, or modify QSO information; and (4) produce from the log file a text file that can be edited and printed as a log for submission to the committee.

With either the CQ WW DX or ARRL DX contest programs, at any time during logging you

can observe the dupesheet for the current band, country status for all bands, and the current score summary sheet, returning to logging with a keystroke. You can also observe the zone status for all bands in the CQ WW DX version.

Either program can be obtained from Alan for \$10. He doesn't mind sharing of his programs between testers, but they aren't to be distributed for profit or gain. Contact Alan Harp, K4PB, 8113 Belgium Drive, Raleigh, NC 27606, for more detailed specs.

**FASTBACK PLUS.** We've covered various IBM-PC utility programs in past columns, as we're firm believers in having a full array of utilities at your disposal in order to help maxi-

mize the usefulness of your computer. Having the right kind of utility programs on hand also can save yourself a great deal of grief when "computer disaster" strikes.

One of the worst computer disasters you can face is the crash of your hard disk drive loaded with multi-megabytes of valuable programs and data. All is not irretrievably lost, however, if you have backed up the bits and bytes on the now-defunct drive. A fast and reliable backup utility program can be worth its weight in gold—not only to businesses that might be forced out of business with the loss of all their accounting data, but to amateurs who could stand to lose their entire contest log from a to-be-submitted on-the-air contest.

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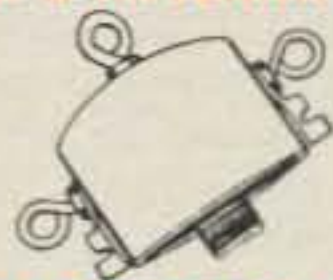


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- Handles 2 kw PEP & covers 160 through 10 meters
- May be trimmed to fit small city lots

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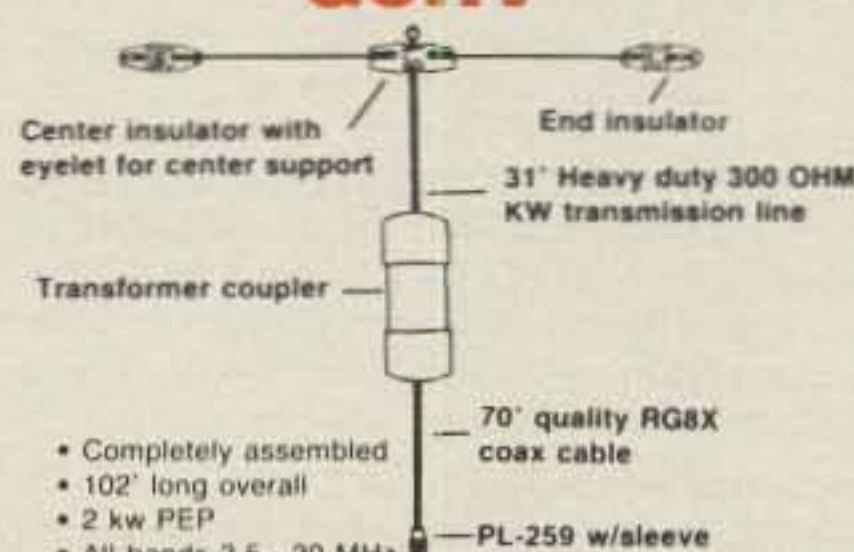
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D-40	40/15	66'	28.95
D-30	30	46'	28.95
D-20	20	33'	27.95
D-15	15	22'	26.95
D-10	10'	16'	25.95
<b>Shortened dipoles</b>			
SD-80	80/75	90'	35.95
SD-40	40	45'	33.95
<b>Parallel dipoles</b>			
PD-8010	80,40,20,10/15	130'	43.95
PD-4010	40,20,10/15	66'	37.95
PD-8040	80,40/15	130'	39.95
PD-4020	40,20/15	66'	33.95
<b>Dipole shorteners—only same as included in SD models</b>			
S-80	80/75		\$13.95/pr.
S-40	40		12.95/pr.

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<b>Half-sized dipoles</b>			
HSD-160	160	130'	\$49.95
HSD-80	80	68'	46.95
HSD-40	40	34'	44.95
<b>Loaded dipoles - using coils</b>			
LD-I	80,40	80'	\$59.95
LD-II	160,80,40	122'	79.95
LD-III	80,40,20,10	53'	89.95
LD-IV	160,80	164'	69.95
LD-V	160,40	115'	64.95
LD-VI	80,40	78'	59.95
<b>Trap dipoles</b>			
TD-2010-2	20,15,10	28'	\$49.95
TD-2010-4	20,15,10	25'	64.95
TD-4010-2	40,20,15,10	57'	54.95
TD-4010-4	40,20,15,10	48'	74.95
TD-8010-2	80,40,20,15,10	106'	59.95
TD-8010-4	80,40,20,15,10	99'	79.95
TD-8010-6	80,40,20,15,10	84'	99.95
TD-16080-2	160,80	210'	71.95
TD-16010-8	160,80,40,20,15,10	148'	129.95

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**Windows**  
 Standard window 80,40,20,15,10 130' \$47.95  
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 TV-4010-1 40,20,15,10 29' 44.95  
 TV-8010-3 80,40,20,15,10 44' 67.95  
 TV-16010-4 160,80,40,20,15,10 75' 79.95  
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There are dozens of backup utilities on the market today. One of the best is FASTBACK PLUS. It's a high-speed backup program that copies data from your computer's hard disk to standard floppy disks, or to other backup media, including tape drives and other hard disks.

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Though FASTBACK PLUS is a bit pricey for the average amateur at \$189, it's ultrasophisticated and really loaded with features that make it extremely easy to use—almost foolproof. It features a logical "pop-down, point-and-push" menu system with selectable user levels that can be preset to your particular level of expertise—advanced, experienced, or beginner. With this feature new users can master the program quickly, while "power users" have complete control over advanced options; outstanding context-sensitive help is available at the press of a key. You can customize the setup to save and recall program options, and you can make use of keystroke macros to completely automate backup sessions.

While there are lots of good backup programs out there to compete for your money, I found FASTBACK PLUS to be extremely easy to use, giving me the warm feeling that should I ever have to restore a "down disk," I'd be able to do so with a high level of confidence. It's very fast, too, several times faster than the backup and restore utilities that DOS offers, although I'm not necessarily convinced that it's *the* fastest backup utility in the industry, as the manufacturer claims. Although the high price is oriented to the business user and may tend to price FASTBACK PLUS out of the home-user and amateur market, with some shopping it is available at deep discount for a little over \$100.

For more information, contact Fifth Generation Systems, Inc., 1322 Bell Ave., Suite 1A, Tustin, CA 92680.

**VGA Dimmer.** Revolution Software has several handy and inexpensive utility packages on the market for the IBM-PC, including Disk Jockey and Cruise Control, both of which we've highlighted in previous columns. Recently I came across a third product, VGA Dimmer™, a screen-dimmer utility that supports most IBM-PC graphics cards.

The product is made up of two components, Auto-Dimmer™ and Dimmer Switch™. The first component blanks your display screen automatically after a time delay that you program. You can set Auto-Dimmer for your convenience, to expire between 1 and 60 minutes after your last keystroke. To restore the screen, you depress either SHIFT key on your computer's keyboard. This feature goes a long way to protecting your monitor from phosphor burn-out, which is a nasty possibility if you leave your computer and monitor on for very long periods of time.

The second component allows you to blank the display screen from the keyboard by depressing either SHIFT key several times in succession. This feature affords you a discreet method to shield sensitive information from inquisitive visitors (your DXCC country total, per-

haps, or your progress on WAS?) without leaving your application program. When the visitor leaves, all you need to do to restore the screen is to depress either SHIFT key.

The \$29.95 program is designed for the IBM PS/2, IBM-PC, and 100-percent compatibles; it supports VGA, MCGA, EGA, CGA, MDA, Compaq, and Hercules graphics cards. For more information, contact Revolution Software, Inc., 715 Route 10 East, Randolph, NJ 07869.

## Short Bursts

**Thickest Ham Magazine, Largest Hamfest.** Despite the similarity in names, there's no connection between the U.S. *CQ* and the *Japanese CQ Magazine*. It's interesting, though, to note what a whopper of a publication the JA magazine is each month. Last time I checked, monthly issues were running around 500 pages sandwiched between two thick, slick covers. Unfortunately, it's of course written in Japanese so that deciphering all the interesting-looking gear in each issue is a very difficult challenge. One thing I do note is the very large number of antenna advertisements!

Oh, yes. If you thought that the Dayton Hamvention was and is the largest amateur radio convention in the world, you're slightly out-of-date. According to a short note which appeared in *WorldRadio*, the 1987 Japanese Ham Fair, held at the Tokyo International Trade Center, drew more than 54,000 visitors. This is around twice the number of visitors Dayton gets! Hmmm... I wonder what the flea market is like. Does anyone know?

**Carry Me Back to CNN Center!** Hamfest season is still a few months away, but here's something for which you might want to plan if you are attending the "big one" in the southeast, the Atlanta HamFestival. It's the public tour of the Cable News Network and Headline News television studios at the CNN Center, just adjacent to the Georgia World Congress Center where the HamFestival activities are held.

During a lull in last year's HamFestival activities I took a short walk over to the CNN Center and Omni Hotel complex and chanced on a tour group forming to check out CNN. Although geared to the public's nontechnical fascination with news production and not the technical ins-and-outs of network TV, the tour nevertheless was an interesting one that takes about 45 minutes to complete. As such, it provided a fascinating look behind the scenes of the 24-hour news networks. This year I suspect that the new Spanish-language and Turner Network Television networks will be featured attractions.

Last year the cost for the tour was \$4.00 for adults and \$2.00 for children and seniors, being offered Monday through Friday 10-5 and on Saturdays and Sundays from 10-4. It's conducted on a first-come, first-served basis and is limited to 16 people per tour. Information on the CNN Center tours can be had by calling 404-827-2300 or 404-827-2491.

## Wrapping It Up

That's all for this month, guys and gals. Next month more books that we think you might like to add to your hamshack bookshelf. See you then.

*Overheard:* May your standing waves never ever waver.

73, Karl, W8FX



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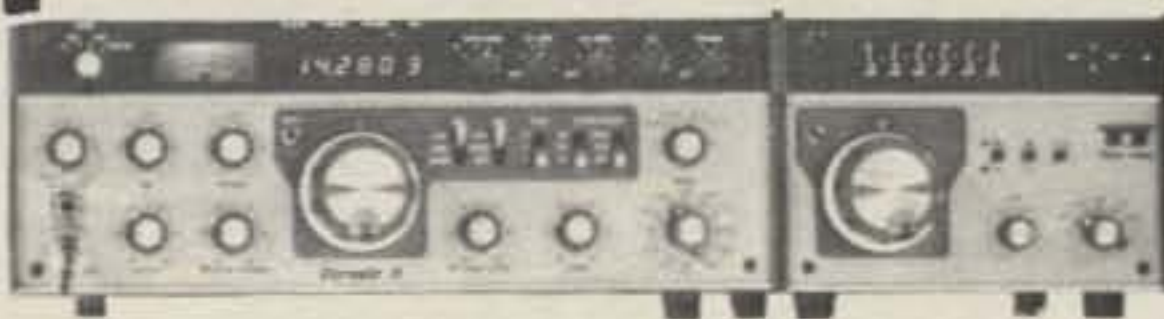
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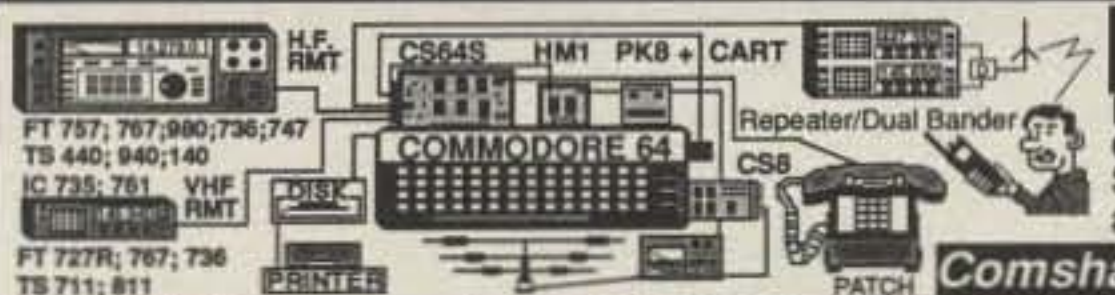
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| <p><b>Controller Features</b></p> <ul style="list-style-type: none"> <li>*Change variables remotely from touchtones or Packet</li> <li>*Unlimited voice messages</li> <li>*Alarm Clock, auto execute</li> <li>*Individual user codes</li> <li>*Disk &amp; Printer logging of users, tel #'s, lapsed time</li> <li>*Rotating Polite ID's</li> <li>*16 External relay controls</li> <li>*2-tone &amp; sub tone Paging</li> <li>*CW Practice with voice</li> <li>*Security mode, T.tone mute</li> <li>*Voice announces each user call sign when logging on</li> </ul> | <p><b>Autopatch &amp; Reverse</b></p> <ul style="list-style-type: none"> <li>*1020 (18 digit) tel #'s stored</li> <li>*Quick dial &amp; answer</li> <li>*Directed general page</li> <li>*Selected restricted patch</li> <li>*Telephone control input</li> </ul> <p><b>Dual Combined Remotes</b></p> <ul style="list-style-type: none"> <li>*20 Macro memories</li> <li>*Scan up/down; 100Hz steps</li> <li>*Monitor &amp; lock modes</li> <li>*Operate splits, combine HF &amp; VHF radios as Dual VFO's</li> <li>*Automatic mode selection</li> <li>*Talking S Meter; Voltmeter</li> <li>*Rotor control speaks deg.</li> </ul> | <p><b>External relays; 3 DPDT relays +5</b></p> <ul style="list-style-type: none"> <li>Open Col. Tr. Sw...CS 8 .....\$79.95</li> <li>*Rotor control D.C. to digital display &amp; Voice; for all rotors.HM1 .....\$49.95</li> <li>*Packet &amp; BBS; Voice Meters &amp; Alarm Inputs; 8 On/Off PK8 .\$.149.95</li> <li>*Slave Packet Interface &amp; cable Links PK8 to 2nd C64 PK1 ....\$49.95</li> <li>*EPROM Autoboot, custom PROM cart with your system.CART.\$ 99.95</li> <li>*C64 &amp; 1541 12V.Switching supply crystal controlled ...DCPS.\$119.95</li> <li>*System Manual ;Refunded with purchase of CS64S.....MN1...\$ 15.00</li> </ul> |
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# CQ REVIEWS:

## The Spectrum International 70/MBM28 JayBeam Antenna

BY LEW McCOY\*, W1ICP



This is a closeup of the loop driven element showing the enclosed balun transformer. The black cone-shaped object is a flexible boot that fits over the balun and feed line to provide weather protection.



This is the complete antenna just a few minutes after removing it from the carton.

**F**or several years John Beanland, G3BVU/W1, has had a booth at the Dayton Hamvention showing the various Spectrum International antenna products. I always stop and have a friendly chat with John simply because we both like to talk antennas. Last year John suggested that I might be interested in reviewing one of their beams. This is the result of that chat.

The antenna I received for review is a 420-450 MHz (70 cm) beam antenna that is quite different than the customary Yagi. It may "look" like a Yagi with some odd-ball-shaped elements, but it is actually four Yagis combined into one. A little later I will go into exact technical details, but for the neophyte here are the specs on the MBM28/70 cm beam.

First, the specified frequency coverage is from 430 to 440 for an SWR of less than 1.2 to 1. The unit I checked was tried out from 430 to 450 MHz, and the SWR remained less than 1.4 to 1, indicating the antenna is very broad band. The specified gain is 11.5 dB with a front to back of 18 dB. The 3 dB beamwidth is 45 degrees for the H-plane and 40 degrees for the E-plane. Power rating is 1 kw and the feed impedance is 50 ohms. The boom length

is 1.25 meters and the weight is 1.8 kg (4 pounds).

There is a built-in transmission-line balun transformer that provides a nominal 50 ohm match across the band. This is visible in the photograph of the loop driven element.

Essentially, the Spectrum beams are based on a development of the basic J-beam pattern invented by Bill Sykes, G2HCG, in the late 1940s. Early developments were the use of the "slot" to replace the driven elements of a pair of stacked Yagis. The Spectrum Multibeam design takes this a step further.

Consider four Yagis arranged in a box formation—two horizontal beams stacked vertically over two more horizontal beams. Next reduce the spacing between the four beams so that they can be efficiently fed with a common "slot" radiator. This spacing is much closer than optimum for maximum gain, but what does occur is a high value of mutual coupling between the four beams. The use of the slot driven element provides a low-impedance element with its natural very wide bandwidth response as the driven element of the resulting beam. Also, the reflector elements of the four individual Yagis are replaced in this configuration by a common slot element used as a reflector. The director elements in the design are supported by "metallic" insula-

tors, using the principle of quarter-wave waveguide metallic insulators. These are positioned at approximately 45 degrees to the main polarization reference and in fact provide a not-insignificant cross-polarized response at all cross-polarized angles except exactly at the quadrature position.

Mechanically I found the antenna to be extremely rugged. Also, the hardware is of very fine quality. It only takes 15 minutes or so to assemble the complete beam. The antenna comes with the elements already mounted, and an ingenious method of rotating them into place is used. I couldn't help but note that this would be an excellent package for field day or for VHF contests.

There is little UHF work in this area where horizontal polarization is used, so I rotated the antenna 90 degrees and used it with our 450 remote. It almost goes without saying that I was very impressed with the performance.

The antenna I checked is the 70/MBM28. It is the smallest of the three antennas available from Spectrum. They also have the 70/MBM48 rated at 14.0 dBd gain (\$90 list), and the 70/MBM88 which is rated at 16.3 dBd gain (\$135 list). The 70/MBM28 is \$65 list. The antennas are available from Spectrum International, Inc., P.O. Box 1084Q, Concord, MA 01742 (telephone 508-263-2145).

\*Technical Editor, CQ, 200 Idaho Street, Silver City, NM 88061



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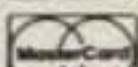
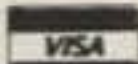
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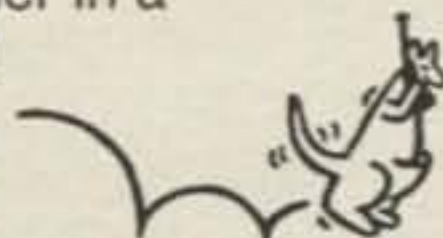
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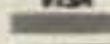
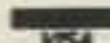
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# The Packet User's Notebook

a feature by  
**BUCK ROGERS,  
K4ABT**

CONNECTING YOU AND PACKET RADIO IN THE REAL WORLD

## Color Pictures Via Packet

There are many great names who have left their mark in packet radio. Among the list of notables are Howie Goldstein, N2WX, creating the firmware and Bob Slomka, WD4MNT, creating the software for some of our more advanced packet controllers. After reading this month's installment of the PACKET USER'S NOTEBOOK, your world of packet radio may never be the same again. This month demonstrates a totally new concept of digitizing, capturing to disk, and transmitting high-resolution color pictures via packet.

**W**hen HAL Communications released their electronic mailbox for RTTY back in 1982 and 1983, I sometimes wonder if they were aware of the impact it would have on the future of digital amateur radio communications. The TRS-80's (I, II, and III's), and the Apple II and II plus computers were making their way into the ranks of amateur radio. These computers were the powerhouses of RTTY because they were faster and easier to interface to the new mode of traffic handling via the Mail Storage Option or as it was better known, the **MSO**. Two of the major suppliers of the MSO systems, was HAL Communications Corporation, and Mactronics Inc. These MSO mailboxes and BBSes would support speeds from 45 to 110 baud ASCII. In those days we could upload and download any BASIC program or ASCII file as long as it was saved in an ASCII format. That was only a small part of what you could find on the MSO's.

### Picture Collecting Is Fun

Once, there was the ever familiar RTTY pictures composed of letters and numbers arranged in such a way that when printed out on long printer paper, (in most cases, rolls) would present the recipient with a very good picture or scene. There were not many ways to display these masterpieces since the sheets of paper were usually several feet long, or required placing the sheets side by side to form a wider tapestry. The other restriction was that in the days before disk storage media we had only tape... and in some cases, it was not magnetic tape, instead it was perforated paper tape.

For a moment, consider how much room it would take to store one picture that required over 30,000 letters and numbers to compose. After we had received the complete picture (and after several tries) and saved it to disk, we went about the long task of printing the picture, because it was too massive to be displayed on a screen.

With the advent of the MSO's and disk storage media, the picture collectors began to ex-



Lane, KC6AST, is a human digipeater, with his left hand on the Model 100 keyboard and his right hand on the PC keyboard. Lane has discovered since this photo was taken that this is not exactly what we mean by digipeating.

perience a heyday, because we could store eight or ten pictures on a single disk. This in itself was a bit expensive in those days, since the first disks I purchased were seven dollars each.

### Picture Making, Is Even More Fun.

Today, we can depend on others to develop these Picassos or we can purchase the digitiz-

er to build our own pictures. This places the prospective graphics and picture developer in a good position to make his or her own pictures. Later I will discuss a way to embellish these pictures to some degree. With the new scanners which pick up a high contrast picture and save it in a binary format on disk, we are able to make copies of some already hard-copy elements. The graphic scanners I've

*MFJ*  
**Picture Perfect  
Video Digitizer**

Digitizer Address is (0330)  
Camera Status is ON Picture now in buffer

---

- A. Change digitizer port address (0000 - 03FF)
- B. Check camera status.
- C. Capture picture from source into buffer
- D. Display picture in 2 color format > arrows change colors.
- E. Display picture in 4 color format > arrows change colors.
- F. Load picture from disk.
- G. Save picture to disk.
- H. Picture setup graph.

ESC to exit program

Fig. 1- This is what the main menu looks like in MFJ's "Picture Perfect."

506 Pheasant Ridge Drive, Warner Robins,  
GA 31088





A complete "video packet" station. This one belongs to K4ABT.

into packet and picture collecting, and want to make some of their own pictures. The readers refer to some of my earlier discussions on packet picture handling. This is the "Packet Pictures" anniversary issue, and many innovations have occurred since I wrote that PICPRO article one year ago. Those days of packet pictures are somewhat outdated by this new process we are about to discuss.

### As You Read This, A New and Better Way Is Being Developed

The next or newest way is much easier, and seems to be the way that picture generation is moving for both Packet Pictures and SSTV. The digital converters or "digitizers" as they are sometimes called are becoming affordable for the end user. The digital picture converter can be used with your home video tape player (VCR), or it can have composite video input from your camera. This enables you to feed video to it from a small black and white video surveillance camera or from your color video camera/recorder combination. There seems to be a good supply of cameras coming into the surplus market-place. Even the new surveillance cameras are in the 170 dollar price range now. One of the nice points I've discovered with the small black and white camera is that pictures can be saved in the 4 color format with MFJPIC and some of the "dither" within the picture will appear as blue and red or any other color that you select using the arrow keys within the MFJPIC software. Dither—The dither refers to the 16 graduated scales that extend from white to black or light to dark. It is typically called "Gray Scales". The picture can be saved to disk with this artifact color scheme and it will retain those colors even though it was originally taken with a black and white camera. The quality of the picture is a product of lighting, camera quality, and video converter, gray-scale capture. There are other factors which help add detail, resolution, and definition to the picture quality and picture generation.

The software (MFJPIC.EXE), which is the support system for the "Picture Perfect" video digitizer, is important because it allows the user to view the level of the video before it is captured to the buffer. In addition, we are allowed to look at the picture while it is still in the PC buffer prior to saving it to disk. This means we can triple check our work before we print it

to hard-copy or save the picture to disk. There is a port on the hardware to connect to an external monitor plus the controls to let us increase or decrease the level of contrast.

The "Picture Perfect" video digitizer system from MFJ Enterprises, Inc., and the MFJPIC.EXE software developed by Bob Slomka WD4MNT, are part of this month's topic. As most readers remember, Bob is the author and developer of the PICPRO.EXE program that we first used with the PC to transmit high resolution color pictures via packet. Bob, also wrote the MFJVU.EXE, BAKCOM.EXE, MFJCOM.EXE, PACPRO.EXE, PACFILE.EXE, and FASTFILE.EXE. Bob wrote SAPSTERM.COM that was distributed by the Southeastern Amateur Packet Society and dates back to the early days of packet. Even then Bob had binary file transfers working but the hobby of packet was still in its infancy. So it goes without fanfare, Bob is as devoted to the advancement of packet technology as I am. When he writes packet programs, he enjoys putting them into the hands of those who give the programs the most exposure.

At this writing, the MFJPIC.EXE program is part of the package you receive when you purchase the "Picture Perfect" picture digitizer from M F J. The "Picture Perfect" software is being integrated into the MFJMULTI.COM "All Purpose Communications software" so everything can be accomplished without ever leaving the terminal program (more on the MFJMULTI.COM program later).

This month's *Packet User's Notebook*, is introducing a totally new concept for packet picture generation, transfer, and storage. It not only lets you send and receive pictures, it also lets us capture the picture from the digital capture device which we can then add to our PC or compatible. The picture capture system that we use is the "Picture Perfect" from MFJ Enterprises, Inc. It takes only two or three seconds for me to capture the picture, then I press a "hot-key" and I'm back in the packet terminal mode. I have actually captured a picture to buffer, sent it to the connected station, and receive the automatic courtesy packet from the station which says; "Picture received and stored to disk, TNX for the file", all in less than 30 seconds.

This "All purpose communications software" is an all inclusive package that is written by Bob Slomka, WD4MNT to compliment Howie Goldstein's, N2WX special coded firmware

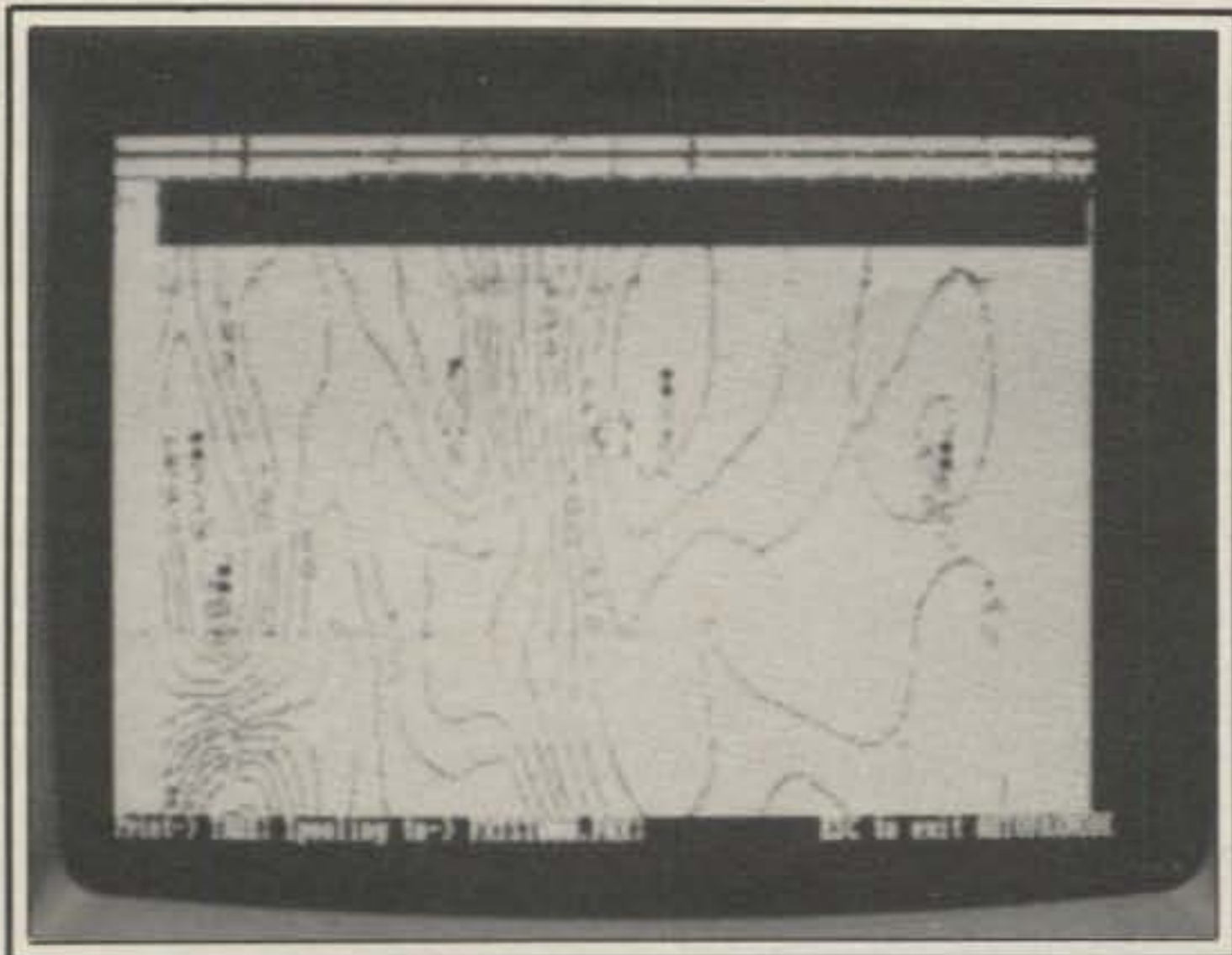


A digitized picture just received on the author's packet screen using the MFJ Multi-Com. This little tabby is obviously interested in packet radio too.

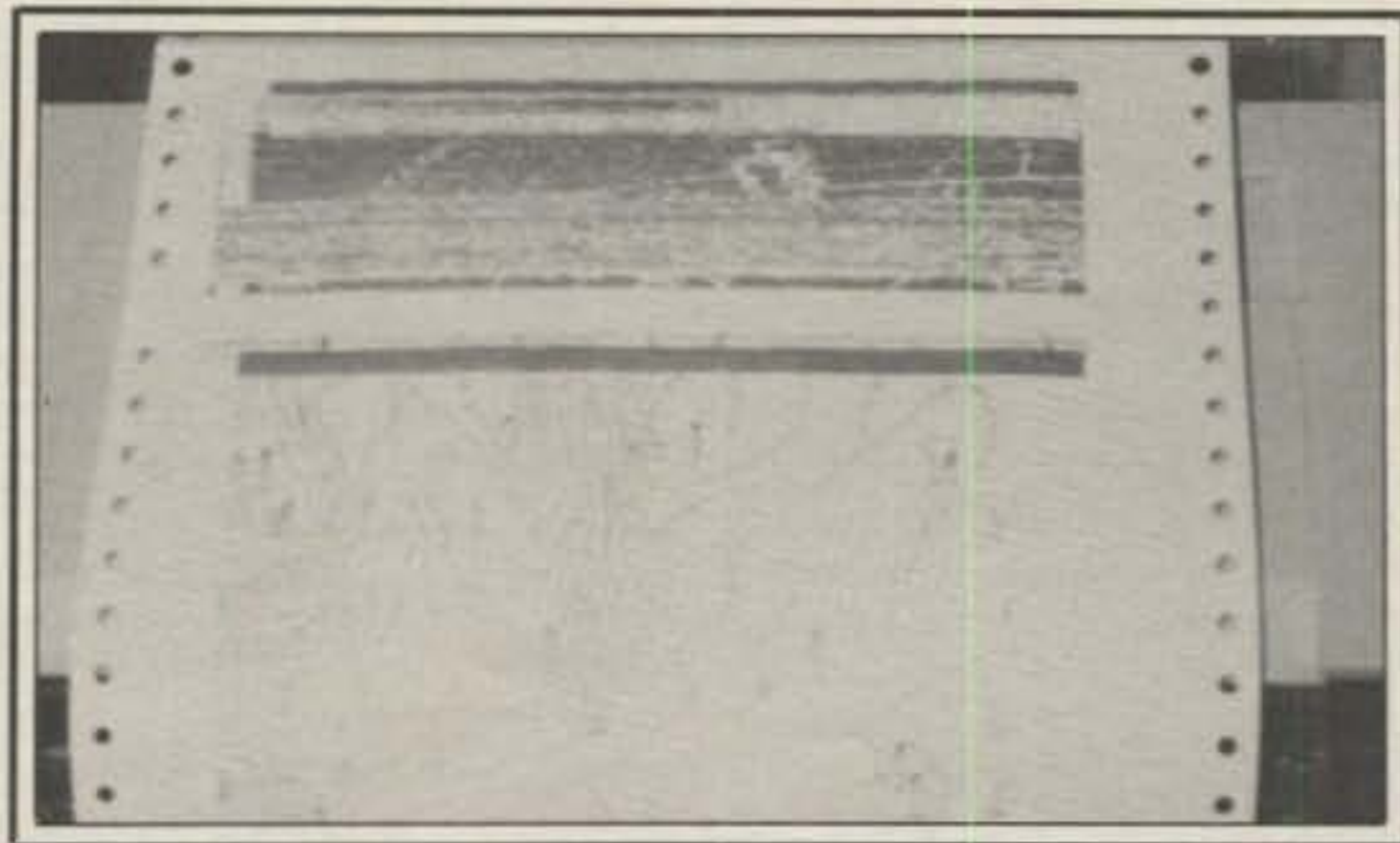
seen are still in the 300 to 600 dollar category. The cost of digitizers has been dropping in the last year. One can now buy an excellent digitizer in the 150 dollar range. For the PC and clone owners this is really good news. This has now placed the digitizer into the reach of the average packeteer. The "Picture Perfect" system, for example, is a system that comes with supporting software (you provide the camera or source of video). The only thing left is for you to decide what you want to digitize, zoom in on your subject, adjust the contrast and brightness and hit the "C" key to "Capture the scene".

### Here's How You Get Your Start In Pictures

How can I generate my own pictures? is the topic of many letters I receive from readers who are



A WEFAX (weather facsimile) coming in is displayed on the screen using a MFJ-1270B and MFJCOM.EXE. On the right, the same WEFAX is being printed and saved to disk, all operations occurring at the same time.





within the MFJ-1278 Multi-Mode TNC and the firmware within the MFJ-1270B/1274. It includes a high-level Picture Bulletin Board (PBB), an automatic WEFAX capture mode, the capability of 4 to 16 levels of SSTV gray scale picture mode, and a word-processor/text editor.

As I work to make the deadline for this months column, I am beginning beta-tests of the 16 color picture transfer system that allows the pictures to appear on the screen in the EGA format.

I don't have the room here to do a review of the many advanced features built into this software, but I'm betting you will soon read more about it in this magazine.

## The Factors Which Contribute To Picture Quality

Picture quality is determined by the level of lighting and the percentage of dark to light contrast. Good lighting proves to be a necessary ingredient in the outcome of the finished picture. Although we know that picture quality is a product of lighting, camera quality, and video converter gray-scale capture, there are other factors which help add detail, resolution, and definition to the picture. In picture generation, the software and hardware of the "Picture Perfect" video digitizer lets you set the lighting and contrast parameters by watching an on-screen floating nomograph.

The software lets the user save the picture to disk, load a picture from disk, view in two- or four-color formats and increase and decrease the level of contrast within hardware. A "Picture Perfect" captured picture will comprise about 17 K of space on a disk. This makes it possible to store approximately 21 high resolution CGA color pictures per 5.25 inch 360 Kbyte disk.

## A Few Simple Rules Make Picture Generation Easy

I'm not sure what it is, but there is something exciting about displaying real pictures on your computer, and loading them into your paint or graphics programs and then shrink, enlarge, rotate, or manipulate the photo in many ways. You can blend one picture into another, shrink pictures to small size and fill your screen with several photos that you have digitized.

The "Picture Perfect" software is so easy to use it becomes a treat to look forward to when building a picture library for packet pictures. There is no limit to the applications for this digitizer. The results are not limited to packet only, they can be used with the telephone modem systems as well. In either case, you may find you want to digitize pictures of friends, pets, cars, planes, or just about anything you wish to preserve for future use, viewing, or reference. Once you develop the skills of fine tweaking the "Picture Perfect" you will find that the proper lighting and setup will allow you to preserve schematics and drawings in a pictorial library on disk.

To use the "Picture Perfect" hardware, it is necessary to have the MFJPIC software loaded and running. The first thing to do once you have the disk in the active drive, is to type **MFJPIC** and **<enter>**. Next you see the sign-on picture, this lets you know the software is running. Press **<enter>** and you should be looking at the main MFJPIC menu. This menu will appear similar to the illustration in fig. 1.

The MFJPIC Menu starts out with an on-

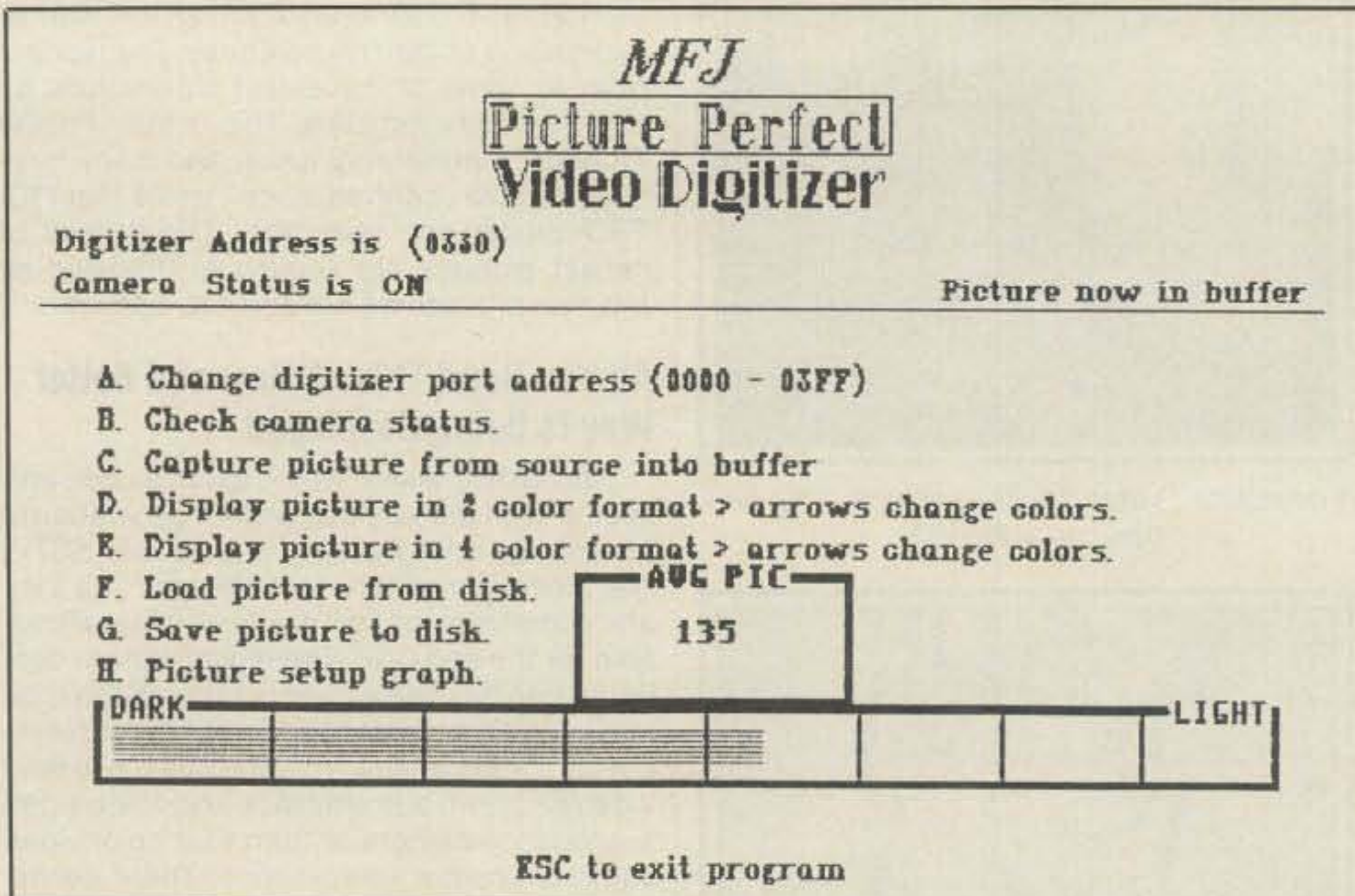


Fig. 2— The picture setup graph or floating nomograph for the MFJPIC system.

screen check of the camera or video source to indicate the presence of video at the input to the "Picture Perfect" hardware. If the camera is **ON**, the current status line should state that the **CAMERA** is **ON**. If it shows **OFF**, then try the **B** command to trigger the Camera **ON**.

We can be sure the levels are within good picture limits by simply pressing the "H" command. We will get a screen similar to fig. 2. This portrays the picture setup graph or floating nomograph. Use the brightness controls to obtain an average picture level of about 130 or set the graph just above the mid-point on the floating scale. As I mentioned earlier, good lighting is a plus when digitizing pictures. Pressing the **ESC** key once will return us to the main menu. When you return to the main menu, press **C** to begin the capture of the target picture that you are focused on. A block will appear on the screen with the words **PICTURE IS BEING CAPTURED**. As soon as the picture is complete, the message block will disappear and the picture should be in the buffer. You can now view the picture in one of two ways. Press **E** and the picture will be displayed in 4 colors on a color monitor or you can press the **D** and view the picture in two colors with varying levels of "dither".

While viewing the pictures in either mode, and if you are using a CGA card with a color monitor, it is possible to change the colors by pressing the up, down, left and right arrow keys in different combinations. The colors will change to another color each time an arrow key is pressed. It is fun to see how many colors you can create within a picture. I hasten to add, this system works well for the MONO-monitor user as well (but not in color, HI).

Once you have the color as you like it, you may save the picture to disk by pressing the "G" key. You will be prompted for a name to apply to the picture. Along with the title, you should also supply an extension. If you are digitizing a general type picture, save it with a **.PIC** extension. Now is the time to form a habit of adding extensions which identify the category of the picture being saved. This will help when you begin "cataloging" your pictures. If the

pictures are for your antique car picture collection, you may want to save the picture with the extension of "CAR", eg; "57CHEVY.CAR"

## Viewing And Printing Your Pictures

The MFJVU.EXE program that is supplied on the disk with the MFJPIC.EXE will prove to be a very good asset when you want to show-off your pictures. MFJVU .EXE is user friendly because it will let you look at the directory of the picture disk and if the directory is not the one you wish to select from, you can use the **ALT D** and change to another disk, directory, or sub-directory. As soon as you make the directory change the MFJVU.EXE program will let you highlight any of the pictures or files and display them on the screen. If the picture is not the right choice, press **ESC** one time and select another picture to view. MFJVU will allow you to change colors with the arrow keys just as you did while in the MFJPIC.EXE "Picture Perfect" software.

If your printer is the dot-matrix type and supports graphics printing, the next step will enable you to make hard-copies of your work. While you have a picture displayed on the monitor, momentarily hold down the **SHIFT** key and press **F5**. A positive print of the picture should begin printing on your printer. If you wish, you can press only the **F5** key and receive a negative print of the picture. It's fun to experiment with the different patterns and pictures presentations with the positive and negative hard-copies.

## A New Day Has Arrived For The Advanced Packeteer!

As I write these words for this month's *Packet User's Notebook* column, I am watching another PC equipped packet station that is sitting adjacent to this one (I am writing this months article with MFJMULTI.COM text editor feature). I am witnessing a very powerful packet terminal program which goes far beyond anything I've used in the past.

Between Howie Goldstein, N2WX, and Bob Slomka, WD4MNT, our world of packet radio



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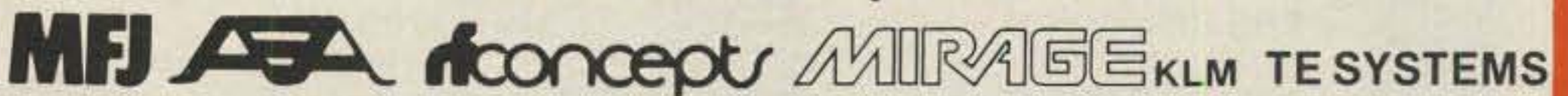


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will never be the same again. Bob just sent another revised beta-test copy to me at 2400 BPS. As the file was automatically saving to the disk drive of the other station, he printed this line on my screen, "see if you think this one will attract any attention"! I think he did it to give me a glance of what is to soon be released. I am amazed at some of the things he does with a CPU. It has to be smoking as it does all the tasks he puts it through.

I promise to let you know what the next level of genius that he and Howie take us to in this fun filled world of amateur radio packet communications. As I promised earlier in this column, here is a peek at some of the MFJMULTI.COM features that are "sizzling my clones"

The MFJMULTI.COM all purpose communications software, has so many features in it that even I have to use the built-in help menu. There are additional help menus in each of the windows to the various functions of the MFJMULTI.COM. Each menu may contain a command feature which is similar to a command feature in another function menu, however the menu will specify the different window so the feature command will perform a new command related to the window you are currently in. This is another way Bob gives the user a running-start at getting air-borne without digesting the well written manual that is

part of the package.

- There is an on-line "hot-key" text editor, which also doubles as a superb word-processor. This text editor allows; cut & transmit, cut & save, cut & print, and cut & delete.

- Each packet station running this software, becomes a Picture Bulletin Board (PBB). This PBB will let a connected station pull a directory of binary files and pictures from a sysop designated drive. When the user is using the same software, and begins down-loading a picture file, the picture will display on the screen, as it is received. When the down-load is complete, the picture automatically saves to disk.

- Picture transfers are reduced in size and time to pass because the program compresses the picture on-the-fly at the senders end, and it automatically de-compresses the picture as it is received and displayed on the receiving end.

- It uses easy two-key commands in conjunction with Howie's built-in MFJ-1278 firmware routines to capture WEFAX or SSTV pictures.

- Autofax WEFAX collection modes which will let the user capture as many WEFAX maps and pictures as they like and then automatically saves the map to disk with titles and sequential numbering. The software uses the computers internal clock to let the user set the

system to begin capturing FAX at a predetermined time.

- After you have digitized a picture with the built-in "Picture Perfect" software, captured a WEFAX map, or captured an SSTV picture, you can then display, save, print, and send to another station in the fast error-free packet picture mode.

- A nice option which Bob has installed into this power-house is the software that supports the MFJ "Picture Perfect" hardware. With this addition to the menu, we are able to select the digitizer mode, capture a picture and transmit it without ever leaving the terminal program. At 2400 BPS, we have been able to shoot, capture, transmit and display a picture . . . under 30 seconds.

- A full page "HELP" screen will display at anytime for the clarification of feature and commands. Two keystrokes will invoke the HELP screen and the <enter> will return you to the mode you were in before you accessed the HELP screen.

### Picture Embellishing

After we generate the picture with the "Picture Perfect" video digitizer, we can now add a few "refinements" of our own, or we can place our callsign and address in an area of the picture where it will be legible. To do this we can use a drawing or paint program which allows us to pick the picture off the disk and load it into the buffer of the paint program where we can embellish it a bit. When we are through with the color adding, enhancing, or text adding, We can save the picture to the disk again. The last time I mentioned this paint program I received many letters and requests for more information where this program could be obtained.

The cost of the TPAINT2.EXE on 5.25 inch floppy disk is \$10.00 plus \$2.00 S/H. The program is mouse driven. It is available from:

Donald L. Pavia  
1488 Lahti Drive  
Bellingham, WA 98226

This program is not necessary for the picture generation with "Picture Perfect" or the transmitting of the pictures via packet. This program is used to add text or colors and edit or modify the pictures.

The "Picture Perfect" Video Digitizer is model number MFJ-1292, and is priced about \$150.00. The MFJ MultiComm "All mode digital communications software" is model number MFJ-1289, and is priced about \$40.00.

I want to extend special thanks to the following persons and manufacturers for their help with this month's *Packet User's Notebook*.

Bob Slomka, WD4MNT  
Cordele, GA

Donald L. Pavia  
1488 Lahti Drive  
Bellingham, Wa 98226

Howie Goldstein, N2WX  
Palm Bay, FL

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Until next month, Happy packeting, and I look forward to seeing many of you at the Dayton HAMVENTION.

de Buck4ABT

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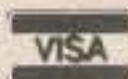
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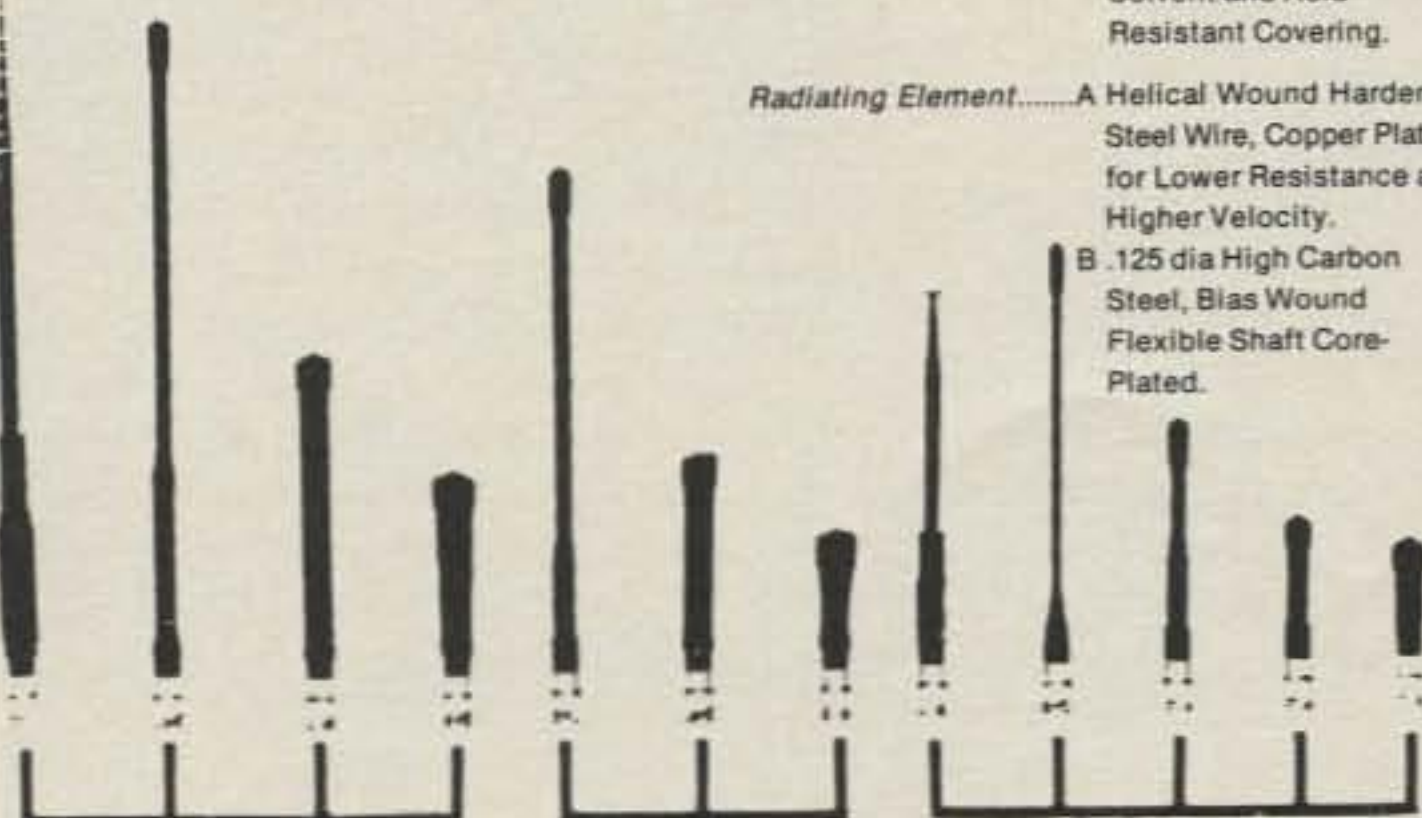
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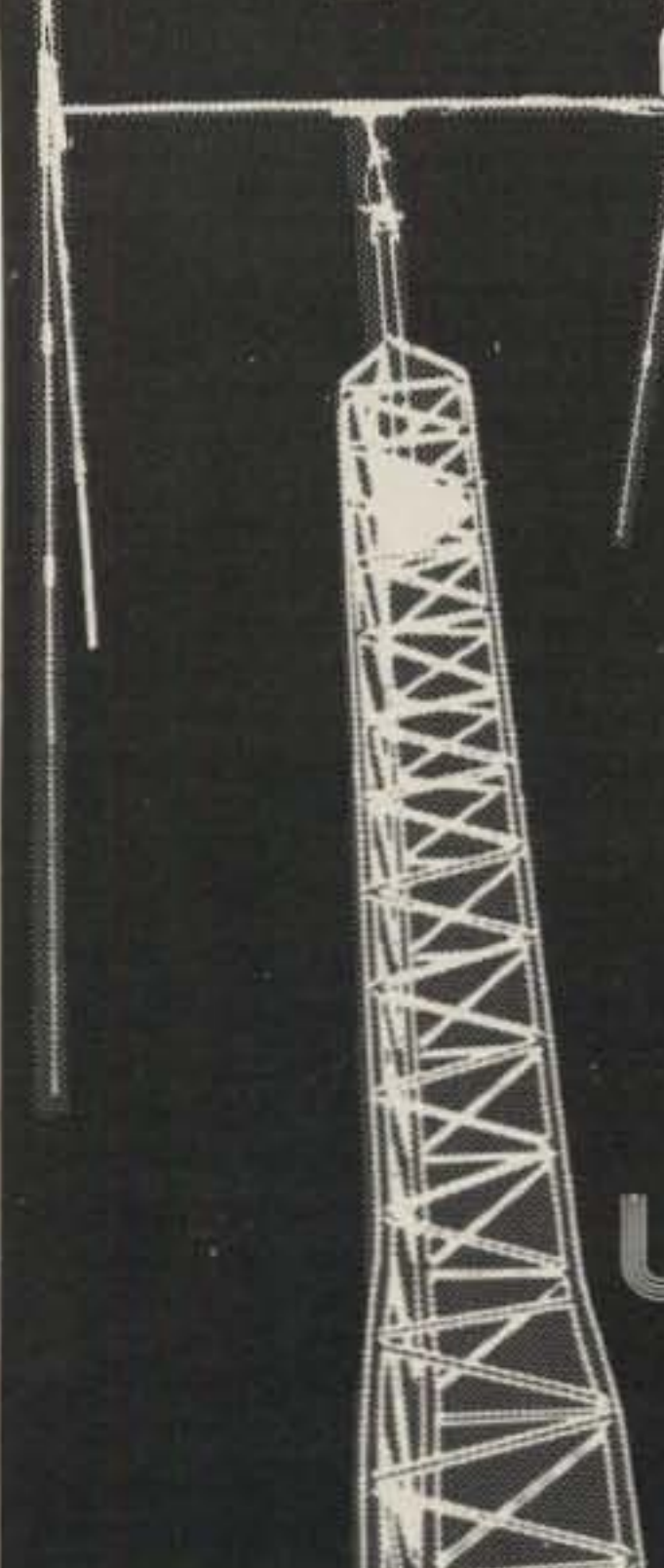
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### Lodging

Please write to Lodging, Dayton Hamvention, Chamber Plaza, 5th & Main Streets, Dayton, OH 45402 or refer to our 1988 Hamvention program for lodging information which includes a listing of hotel/motels located in the surrounding areas of Dayton. Reservations for the surrounding area will then become the responsibility of the individual.

HAMVENTION is sponsored by the Dayton Amateur Radio Association Inc.

## Advance Registration Form

Dayton Hamvention 1989  
Reservation Deadline - USA-April 4, Canada-March 31  
Flea Market Reservation Deadline: February 1

Enclose check or money order for amount indicated and send a self addressed stamped envelope.

Please Type or Print your Name and Address clearly.

	<u>How Many</u>		
Admission (valid all 3 days)	_____	@ \$10.00*	\$ _____
Grand Banquet	_____	@ \$20.00**	\$ _____
Women's Luncheon (Saturday)	_____	@ \$7.00	\$ _____
(Sunday)	_____	@ \$7.00	\$ _____
Flea Market (Max. 3 spaces)	_____	\$25/1 space \$50/2 adjacent	
Admission ticket must be ordered with flea market tickets	_____	\$150/3 adjacent	\$ _____
		<b>Total</b>	\$ _____

\* \$12.00 at door      \*\* \$22.00 at door, if available

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Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Make checks  
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Mail to - **Dayton Hamvention  
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## "HOW TO" FOR THE NEWCOMER TO AMATEUR RADIO

### Merchant Marine

**T**he Gallups Island Radio Association (GIRA) consists of several hundred past and present Merchant Marine radio officers. Their address is Gallups Island Radio Association, Inc., 5597 Seminary Road, #2013-South, Falls Church, VA 22041-3518 (telephone 703-379-8831).

The GIRA has the following active nets. All ex-merchant marine radio officers (and current ones) are invited to participate in these nets. The times given in UTC apply while daylight savings is in effect (summer). Add one hour during the winter, while on standard time.

#### Code Nets

kHz	UTC	Day	NCS
3552	0000	Tues.	W1IPI
14060	1500	Tues.	K6ZK/W6MMG

#### Voice Nets

kHz	UTC	Day	NCS
3806	1100	Tues.	KY1O
3919	1100	Mon.-Sat.	N1BWP
7285	0300	Wed.	K6ZK/W6MMG
14310	1900	Mon. & Fri.	WA5JGD

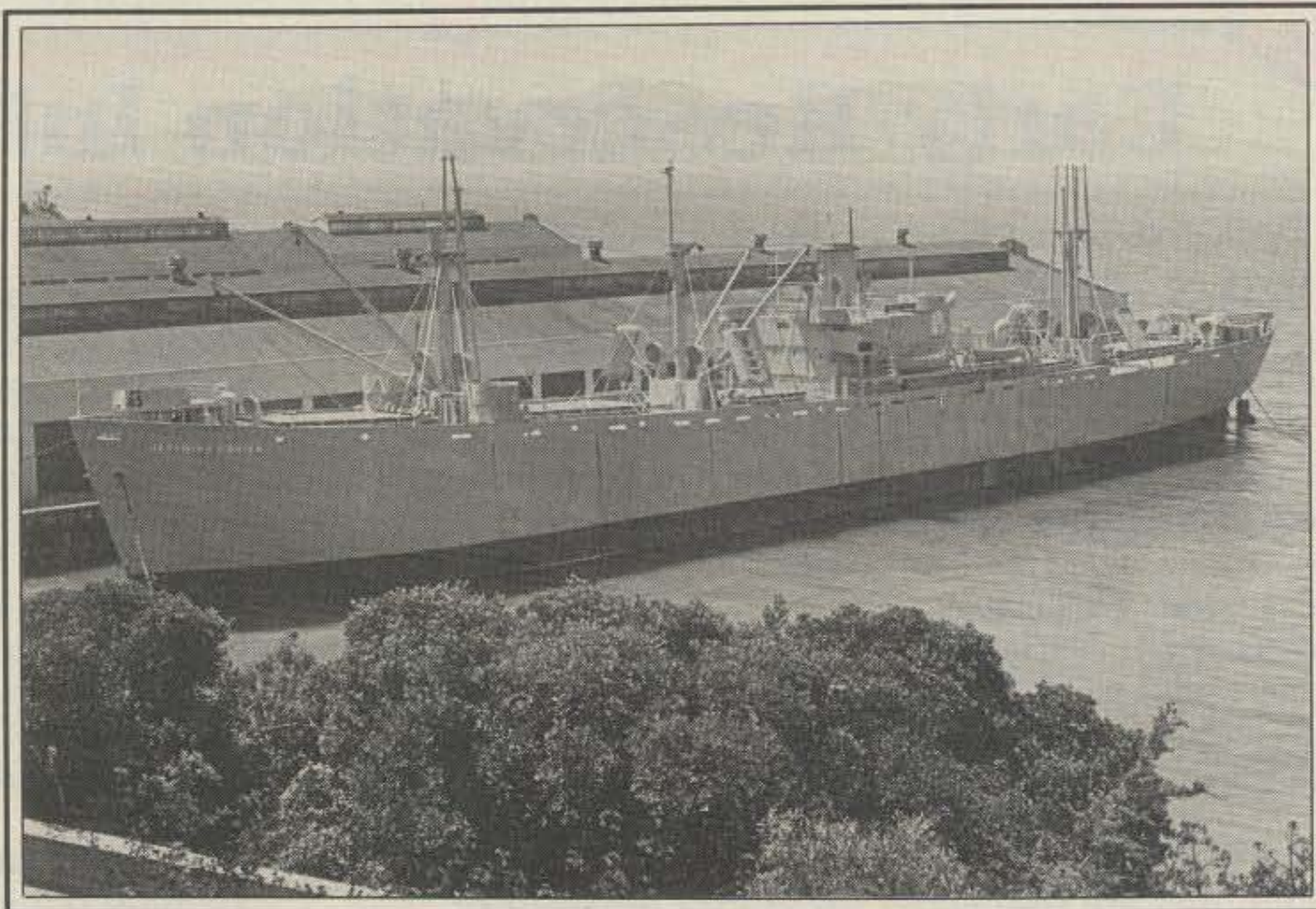
(or 21417)

### S.S. Jeremiah O'Brien

The *S.S. Jeremiah O'Brien* is the last unaltered operational Liberty ship. She was built in 57 days by the New England Shipbuilding Corporation at South Portland, Maine. The *O'Brien* was launched on June 19, 1943. The War Shipping Administration assigned operation of the *O'Brien* to Grace Line. This ship made seven voyages, including trips to the Admiralty Islands, Australia, Chile, India, New Guinea, Normandy Beachhead (11 shuttle trips), Nova Scotia, Peru, the Philippines, Shanghai, and the United Kingdom. More than 2700 Liberty ships were built during WW II.

The *O'Brien* was part of the Suisun Bay National Defense Reserve Fleet for 33 years. This storage area is north of Oakland, California, and it is an impressive sight. In 1979 volunteers brought her back to life and she steamed to the nearby Bethlehem Shipyard under her own power. Following seven months of restoration, the *O'Brien* made the First Annual Seamen's Memorial Cruise of San Francisco Bay during May of 1980. Volunteers continue to restore the ship. My wife

2814 Empire Ave., Burbank, CA 91504



This is the S.S. Jeremiah O'Brien docked at her home berth in San Francisco, California. She is the last unaltered operational Liberty ship.

(Marie, W6JEP) and I found it to be in excellent condition when we took the 1988 memorial cruise on the *O'Brien*. It is in much better condition than the three Liberty ships I sailed on during WW II. Ship, tour, and cruise data can be obtained by writing to *S.S. Jeremiah O'Brien*, Landmark Building A, Pier 3 East, Fort Mason Center, San Francisco, CA 94123-1382 (telephone 415-441-3101). The *O'Brien* is a national monument. She is listed in the National Register as an historic place.

This is an appropriate ship to retain. Jeremiah O'Brien was a Machias, Maine Irishman. He was the captain of the *Madonna Liberty*, and the first privateer to achieve a naval victory during the Revolutionary War. They captured the *Margaretta*, a British armed schooner. Captain O'Brien is considered to be the "Father of the U.S. Navy," and a U.S.N. ship-of-the-line bearing his name is always active. The current Navy *O'Brien* is the sixth one.

The *O'Brien's* slop chest (store) is filled with items you can purchase to help support this memorial. These specialized items include aprons, baseball-type caps, books, bumper stickers, buttons, certificates, charms, key rings, medal-

ions, photographs, plaques, sweatshirts, tote bags, and T-shirts. Naturally, these items are imprinted appropriately. Storekeeper Marci Hooper can provide the current list of items and prices.

**Amateur radio operation.** Four amateurs share operating duties aboard the *O'Brien*. They are Bob Gisslow, KB6YYL, Elliott Secundari, K6TW, Richard Secundari, K6TR, and Chief Radio Officer Tom Stand, N6UG. They do not maintain a fixed operating schedule, but they do operate from the ship as much as possible. If you want more information, you can write to Tom at 63 Ulloa Street, San Francisco, CA 94127 (telephone 415-731-2310 home and 415-441-3101 ship). Amateur radio and the *O'Brien* would benefit from more support. San Francisco area amateurs are needed to establish and maintain a fixed operating schedule and to keep the radio room manned during cruises. The ship's operators should have QSL cards showing a picture of the *O'Brien* on the front side. I hope a few readers will support this activity.

**Photographs.** I recently learned that there is a source of ship photographs. Black-and-white 8 by 10 inch photographs can be ordered from the Marin-



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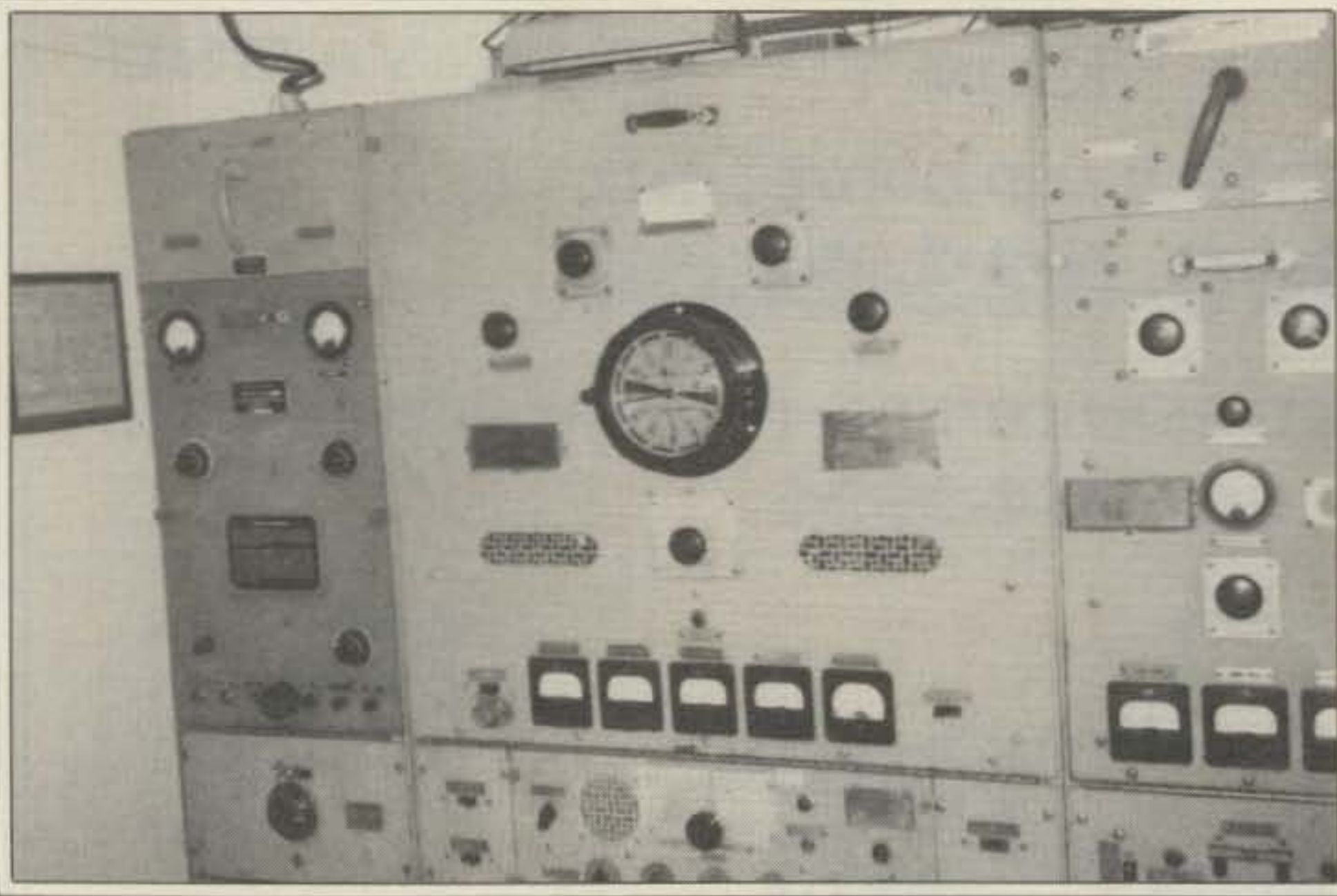
Check  MasterCard  VISA

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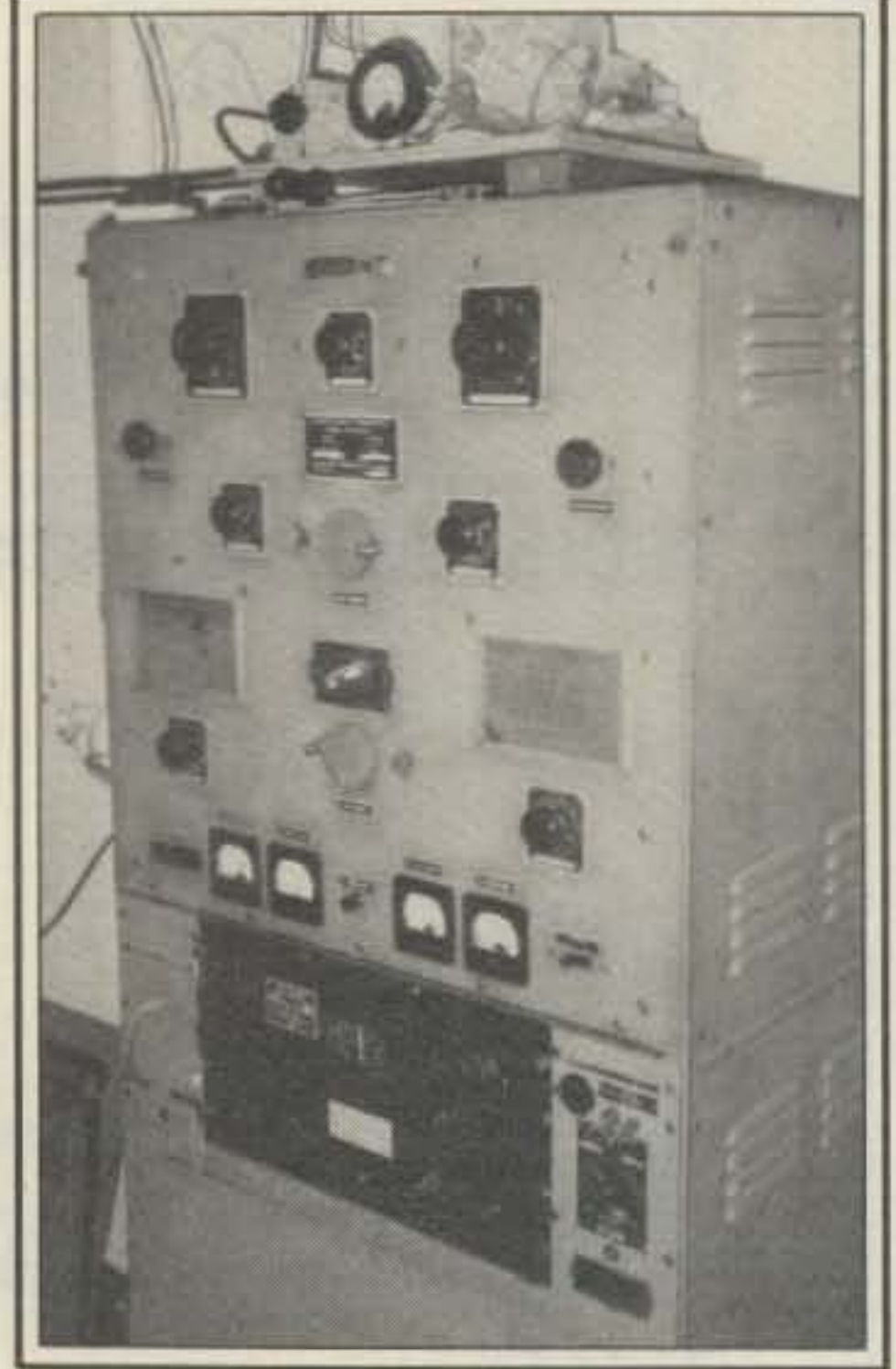
Signature \_\_\_\_\_  
(Signature required on all charge orders)

Mail to: CQ Communications, Inc.  
76 North Broadway, Hicksville, NY 11801





This is the WW II Communications equipment in the radio room of the S.S. Jeremiah O'Brien. Note the emergency receiver at the lower left of the triple unit. It is a crystal receiver, complete with a cat's whisker.



er's Museum Library, Newport News, VA 23606. Glossy-finish prints cost \$10 each, whereas matte-finish prints sell at \$20 each. If you know men who have served in our Merchant Marine, they probably would appreciate it if you informed them of this opportunity to purchase ship pictures.

**Military Discharges.** People who served in the U.S. Merchant Marine between December 7, 1941 and August 15, 1945 are eligible for military discharges, which entitle them to veterans' benefits. Details can be obtained from Commandant (GMVP-1/12), U.S. Coast Guard, Washington, D.C. 20593-0001. Request DD Form 2168. I received my military discharge 40 years and 6 months after I stopped sailing. It would have been a big help 40 years ago.

Only the Marine Corps suffered a higher casualty rate than the Merchant Marine during WW II. The Merchant Marine lost 733 ships and more than 6000 men during WW II, and 600 men became prisoners of war.

**Movie.** Filmmaker Richard Ellison is developing an historical documentary about wartime activities of merchant fleets. If you have material on this subject, you are invited to call him at 617-585-4533.

An East Coast project provides opportunities similar to those which are associated with the S.S. *Jeremiah O'Brien* on the West Coast. The S.S. *John W. Brown* is tied up at pier one on Clinton Street in Baltimore, Maryland. An 8-hour cruise is scheduled for the summer of 1990. If you want details, write to Project Liberty Ship, P.O. Box 8, Long Green, MD 21092.

## Airplanes

A recent request for information about radio-controlled paper airplanes caused me to investigate their availability. A few R-C enthusiasts told me that the best source of paper airplanes is in my area; it is Paper Airplanes International, 1521 Morningside Drive, Burbank, CA 91506. P.A.I. is a subsidiary of Aeronautic Instructional Resources, which is owned by Ray Roberts. Their telephone number is 818-842-3455.

P.A.I. offers 296 kits which range in price between \$1.00 and \$60 each. The average cost of a kit is \$11. The airplanes suitable for radio control sell at \$35 to \$40, less the radio control hardware. There are 166 kits for a single airplane, and the remainder provide 2 to 250 airplanes/instructions. Fourteen kits contain at least 30 airplanes. Models range from the very first airplanes to current space hardware. There is a good mix of civilian and military aircraft.

A copy of the 208-page P.A.I. catalog costs \$8.50. That amount is deducted from the first order that exceeds \$20. There is a catalog description for each kit. Static, scale, and flyable models are identified. Builder skill requirements are stated in five levels. Wingspans vary between about 1 inch to the 78 inch wingspan of the radio-controlled thermal airplane ship.

Radio control of models is popular with some amateurs on 6 meters. It is an aspect of amateur radio that should be more widely accepted by amateurs. Young amateurs should find it to be especially fun, challenging, and educational. The R-C hardware is a lot better now than

what I used in 1939, when I first built and flew R-C airplanes. Here is another opportunity to present an interesting facet of amateur radio to prospective amateurs. The P.A.I. combination paper airplane catalog and textbook should be an asset to innovative school teachers.

The updated P.A.I. catalog should be available by the time this article appears in print. It will show more than 360 kits. The cost and refund arrangements will remain unchanged. The paper airplane which comes with the updated catalog is a Bonanza. If you wish to do so, you could order a catalog, one Bonanza airplane, and three flyable Corsair airplanes (14 inch wingspan and 6 inch propeller with motor) at \$16.25, including postage (\$21 outside the USA). This is a \$6.00 savings over the regular price. If you mention this column, Ray will give you a 10 percent discount on your order.

## Aircraft Pictures

A WW II Air Force veteran who served as a radioman aboard bombers requested information regarding the availability of photographs, line drawings, slides, and paintings of airplanes. His request prompted me to locate a few sources of such items.

The best source I know for aircraft prints is Artistic Decor, 55 Watts Road, Portsmouth PO1 4PS, England. Their catalog lists a good assortment of prints. In addition to aircraft, it includes prints of paintings of ships and submarines. This catalog contains many interesting items about WW II people and events. The catalog is free, but two International Reply Coupons should be supplied to cover



postage costs. IRCs can be purchased at post offices.

An American source of aircraft pictures is Airliners, P.O. Box 1439, Pollock Pines, CA 95726 (telephone 916-644-7091). The associated British organization is Military Aircraft Photographs (MAP), Eastcliffe, Stotfield Road, Lossiemouth, Moray 1V31 6QT, England. If you are requesting information from either organization, supply a self-addressed business-size (#10) envelope. Affix a first-class (25 cent) stamp if your envelope is being sent to Airliners; include two IRCs if it is going to MAP.

If you are requesting information from any/all of the companies mentioned in the following paragraph, you should include two IRCs and a self-addressed envelope with your request. Their mailing information is as follows:

Civil Aircraft Photographs, 32 Brittain Court, Park Road, Sand Hurst, Berkshire GU17 8DP, England.

Kilby Limited, 2 Dam Street, Lichfield, Staffs WS13 6AA, England.

FLI (8F), 30 Hursley, Winchester SO21 2JQ, England.

The Canadian source of Artistic Decor prints is Wings, 150 Dornie Road, Oakville, Ontario L6J 4N6, Canada. The base prices are the same, but shipping charges are less from Canada than from England.

### Heathkit Catalog

Amateur radio is publicized on the front cover of the Winter 1989 Heathkit catalog. Each issue of a Heathkit catalog is distributed to more than one million electronics enthusiasts. Amateur radio equipment and accessories are advertised on pages 40 through 53 of this 108-page catalog. Wayne Wilson, WB8TSO, is the Heath amateur radio product line manager. Wayne is using this issue to provide Heath customers with an introduction to our amateur radio service. Two pages of this catalog are used to introduce nonamateurs to amateur radio. The front cover shows a microphone and our planet and states, "Discover new friends and new worlds with Heath and amateur radio."

If you know someone who is thinking about becoming an amateur radio operator, have a free copy of this catalog sent to him/her. To obtain the catalog, mail your requests to Heath Company, Benton Harbor, MI 49022. Their toll-free telephone number is 1-800-444-3284.

### ICOM Offerings

If you are a new amateur, ICOM has a free publication that should be of interest to you; it is called the "Novice World." It is filled with operating tips and other useful information. Deb Davis, N7IHY, advised that the ICOM "Radio News" newsletters are available at no charge to peo-

ple who request them. The "Novice World" newsletter is particularly useful to new amateurs, regardless of their class of license. Licensing-course instructors could check with ICOM to ascertain which other useful items they have available.

ICOM also has a pair of 8½ by 11 inch bar graphs which show Novice through Extra class operating privileges. One shows "Amateur Radio HF Band Limits," while the other shows "Amateur Radio VHF/UHF Band Limits."

If you want one (or more) of these items, send your written request to ICOM America, 2380 116th Avenue NE, Bellevue, WA 98004.

### The Heil Ham Radio Handbook

I am always searching for items that can be useful to new (and prospective) amateurs. Every once in a while I get lucky. While researching an article about

headsets, I became aware of a handbook that is "must" reading for new amateurs. The man who manufactures the excellent line of boomsets (headsets) also has written a handbook crammed full of essential information.

Bob Heil, K9EID, produced a 168-page paperback that is printed by Melco Publishing, P.O. Box 26, Marissa, IL 62257. Bob's book includes 19 pictures, 9 tables, a good 2½ page table of contents, 23 reference charts, and 237 line drawings. It covers everything from initial station set-up (and operation) through highly sophisticated systems. Basic electronics, building, grounding, troubleshooting, audio equalization, mobile operation, antennas; and many other subjects are included in his book. The best feature of this book is that the explanations are easily understood.

The handbook can be purchased directly from Heil, Limited, 2 Heil Drive, Marissa, IL 62257. The FOB price is

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**220 MHz Amps**  
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RFC 3-211, 2W in = 110 out  
RFC 3-112, 10W in = 120 out  
RFC 3-312, 30W in = 120 out

**440 MHz Amps**  
RFC 4-32, 3W in = 20 out  
RFC 4-310, 30W in = 100 out  
RFC 4-110, 10W in = out

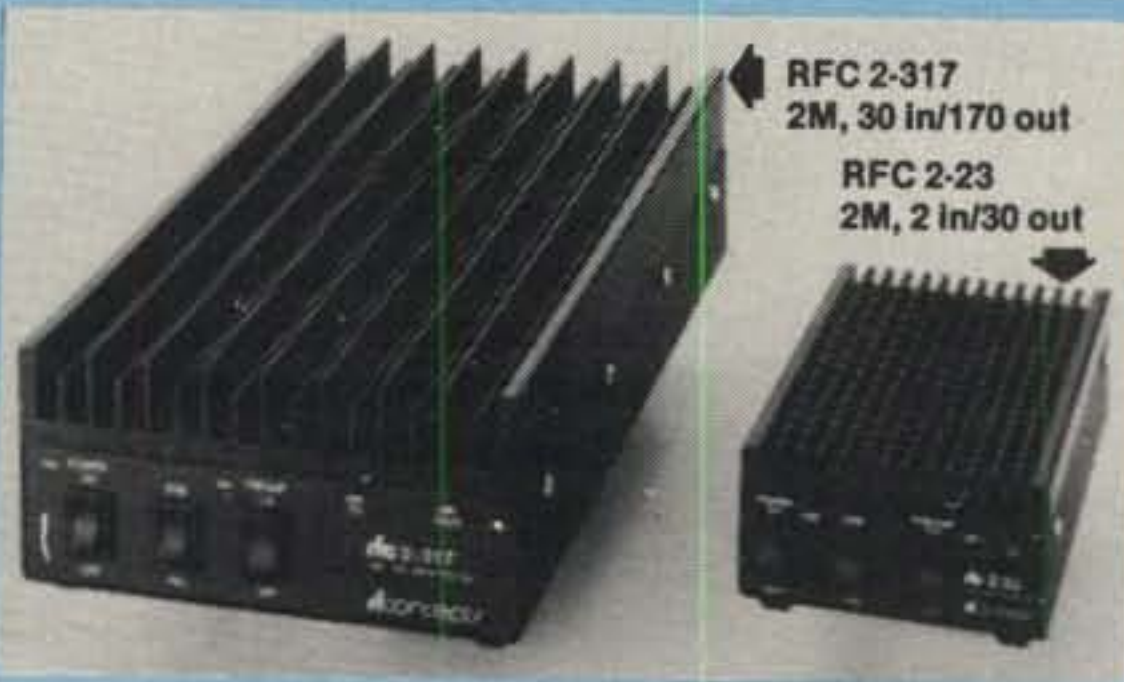
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### USC Amateur Radio Club

Cliff Cheng, KI6CM, is the president of the amateur radio club (WB6JHC) at the University of Southern California. He would like to receive the name, callsign, and mailing address of each amateur who has been (or is) associated with USC in any way. If you were (are) a student, faculty, or staff member, Cliff wants to include you in the USC amateur radio operators roster that is being prepared. USC alumni amateurs may request a free copy of the club's bulletin. Their address is University of Southern California, Amateur Radio Club WB6JHC, Intramural Recreation, Heritage Hall, University Park, Los Angeles, CA 90089.

### Topical Stamp Dealers

The November and December 1988 "Bill's Basics" columns provide information about amateur radio stamps. It is better to request specific groups of stamps from those dealers who specialize in selling topical stamps, and I have obtained a



*This is 10-year-old Bobby Blakeslee, KB2GHX, of Binghamton, New York. He is a fifth grader who is introducing his classmates to amateur radio. Bobby shares a station with his mom (Jackie, KB2GFV) and dad (Bob, N2IHQ). Their station includes a Kenwood TS-820 transceiver and a two-element Yagi-Uda mini-beam. He has contacted amateurs in 8 states and 18 countries.*

list of 49 topical stamp dealers. The American Stamp Dealers Association has agreed to allow me to share this information with CQ readers. If you want a copy, please send your request and an SASE to my California address.

### Amateur Radio Callsigns

One of the common requests I receive is for information about prefixes of call-

signs currently being issued to American amateur radio operators. I answer such requests by sending reprints of the April and May 1979 "Novice" columns. That article clearly defines the exact prefixes of callsigns that will be issued to American amateurs during the next several decades. A single copy of this reprint is available at no charge to each person who sends an SASE (with their request) to my California address.

### Photographs Wanted

Photographs of new amateurs in their shacks provide introductions to a few of the newer licensees. Photograph size is unimportant, but good definition, contrast, and subject matter are important. Color pictures can be used, but black-and-white photographs are preferred. Operating activities and achievements, plus a self-introduction, are needed with each picture. Send an SASE if a picture must be returned. A free one-year CQ subscription (or renewal) is awarded to the one amateur whose picture I select as the winner for the month. If you are a subscriber, please enclose the mailing label (or copy) from your latest CQ issue. One award is made each month, no matter how many photographs are printed. DX amateurs, who frequently work the American Novice bands, are also urged to submit photographs.

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## Announcing *(from p. 6)*

29th on 14.230 MHz from 1900-2130Z, 28.400 MHz from 2130-2200Z; and 7.230 MHz from 2200-0100Z. The Reunion is an annual event where many alumni are contacted. All licensed UI alumni or other interested amateurs are invited to participate. Contact via the Callbook address.

•**Seaford, Delaware** - The Nanticoke ARC will operate KD3AL from 0001Z April 29 to 2300Z April 30 to celebrate 50 years of nylon. Frequencies are all bands CW and SSB. For a certificate, send large SASE to Paul Bishop, 1806 Concord Road, Seaford, DE 19973.

•**The following hamfests, etc., are slated for April:**

Apr. 1-2, **1989 Greater Baltimore Hamboree and Computerfest**, Maryland State Fairgrounds Exhibition Complex, Timonium, MD. Contact GBH&C, P.O. Box 95, Timonium, MD 21093-0095, or call 301-HAM-FEST.

Apr. 1, **Grand Rapids Area Swap and Shop**, Grandville High School, Grandville, MI. Contact STARS, 1714 Havana SW, Wyoming, MI 49509 (616-243-1730).

Apr. 2, **Eleventh Annual Lake County Hamfest**, Madison High School, Madison, OH. Contact Roxanne, 7803 Skylineview Dr., Mentor, OH 44060 (SASE), telephone 216-953-9784.

Apr. 2, **Longmont, Colorado ARC Swapfest**, Boulder County Fairgrounds, Longmont, CO. Contact Bob Dornan, WA2EKU, 1106 Fordham St., Longmont, CO 80501 (303-651-3613).

Apr. 8, **Rochester, Minnesota Area Hamfest**, John Adams Junior High School, Rochester, MN. Contact RARC, 2824 NW 24th St., Rochester, MN 55901.

Apr. 8, **Durham Region Amateur Radio and Computer Fleamarket**, Pickering High School, Ajax, Ontario, Canada. Contact Ron Brown, VE3WZ, 839-3711.

Apr. 8, **Columbus ARC Hamfest**, Bartholomew County 4-H Fairgrounds, Columbus, IN. Contact David Mann, KA9UUP, 458N Country Club Rd., Columbus, IN 47201 (812-342-6302).

Apr. 9, **Madison Swapfest**, Dane County Exposition Center Forum Bldg., Madison, WI. Contact MARA, P.O. Box 4007, Madison, WI 53711, or call 608-274-5153 (leave message on machine).

Apr. 9, **Framingham, Massachusetts ARA Fleamarket**, Framingham Civic League Bldg., Framingham, MA. Contact Jon Weiner, K1VVC, 52 Overlook Dr., Framingham, MA 01701 (508-877-7166). (License exams, pre-registration required.)

Apr. 9, **South Shore ARC Indoor Fleamarket**, Viking Club, Braintree, MA. Contact Hal, evenings, at 617-335-5777.

Apr. 15, **Interstate Repeater Society Fleamarket**, Lions Club Hall, Hudson, NH. Contact Wayne, KA1MKH, 603-895-9033.

Apr. 15, **Charleston, West Virginia Hamfest and Computer Show**, Charleston Civic Center, Charleston, WV. Write to P.O. Box 1694, Charleston, WV 25326, or phone Doug Sweeney, 304-766-6655.

Apr. 15, **Flemington, New Jersey Hamfest 89**, Hunterdon Central High School Field House, Flemington, NJ. Call 201-788-4080 before 11 PM. (VE testing.)

Apr. 15, **Lake Region ARC Hamfest**, Otter Tail County Fairgrounds-Hockey Arena, Fergus Falls, MN. Contact Keith McKay, NØFKF, Rt. 1

Box 46, Battle Lake, MN 56515, or call 218-826-6274. (VE exams.)

Apr. 15, **Lawton-Ft. Sill ARC Hamfest**, County Fairgrounds, Lawton, OK. Contact Claude R. Matchette, 3411 NW Atlanta Ave., Lawton, OK 73505 (405-357-5870).

Apr. 15-16, **Twelfth Annual Inland Empire Amateur Radio Hamfest**, Convention Facility, Spokane, WA. Contact Inland Empire Amateur Hamfest, W. 728 Spofford Ave., Spokane, WA 99205 (509-328-7961).

Apr. 15, **Oak Ridge Hamfest 89**, National Guard Armory, Clinton, TN. Contact Gene Muncy, KB4UMM, Rt. 8, Box 539, Powell, TN 37849 (615-945-5349).

Apr. 16, **MIT Electronics Research Society and MIT Radio Society Fleamarket**, Albany and Main St., Cambridge, MA. Contact W1GSL, P.O. Box 82 MIT Br., Cambridge, MA 02139.

Apr. 16, **Appalachian Amateur Repeater Group Hamfest and Computer Show**, Lebanon Area Fairgrounds, Lebanon, PA. Contact AARG, Homer Luckenbill, WA3YMU, 105 Walnut St., Pine Grove, PA 17963 (717-345-3780).

Apr. 16, **Moultrie Amateur Radio Klub Hamfest**, Moultrie County 4-H Grounds, east of Sullivan, IL. Contact Ralph Zancha, WC9V, 217-873-5287, or write to M.A.R.K., P.O. Box 79, Sullivan, IL 61911.

Apr. 16, **North Carolina ARRL Hamfest**, NC State Fairgrounds, Raleigh, NC. Contact RARS Hamfest, P.O. Box 17124, Raleigh, NC 27619.

Apr. 16, **Southington ARA Fleamarket**, Southington National Guard Armory, Southington, CT. Contact Southington ARA, P.O. Box 873, Southington, CT 06489 (SASE). Exams available; contact Vincent Calandra, 44 Matthews St., Southington, CT 06489.

Apr. 21-23, **1989 International DX Convention**, Holiday Inn—Plaza Park, Visalia, CA. Contact Dave Engle, KE6ZE, 1063 Summerwood Court, San Jose, CA 95132.

Apr. 22, **Auburn, New York ARA Spring Hamfest**, Aurelius Fire Dept., off Rts. 5 and 20, Auburn, NY. Contact James P. Nash, N2DTG, 114 Dunning Ave., Auburn, NY 13021.

Apr. 22-23, **Georgialina Hamfest**, Hippodrome, 2 miles from downtown Augusta, GA. Contact N4JA, P.O. Box 5943, Augusta, GA 30906.

Apr. 23, **1989 Carroll County Computerfest and Hamboree**, Carroll County Agricultural Center, Randallstown, MD. Contact Tim, N3DRB, 301-992-7745, or write to SARA, 5384 Harvest Moon Lane, Columbia, MD 21044.

Apr. 28, **Dayton/Cincinnati Chapter 9 QCWA Banquet**, in conjunction with the Dayton Hamvention, Neil's Heritage House, Dayton, OH. Contact Bob Dingle, KA4LAU, 657 Dell Ridge Dr., Dayton, OH 45429.

Apr. 28, **Miami Valley FM Assn. BASH**, Dayton Hamvention, Dayton, OH. Contact The Miami Valley FM Assn., P.O. Box 263, Dayton, OH 45401.

Apr. 28-30, **Dayton Hamvention**, Hara Arena, Dayton, Ohio. Contact Dayton Hamvention, Box 2205, Dayton, OH 45401.

Apr. 29-30, **Zia Hamfest and Beanfeed**, Dona Ana Fairgrounds, Las Cruces, NM. Contact Joe Herring, W15E, P.O. Box 234, Organ, NM 88052 (505-382-5629).

Apr. 30, **Wellesley, Massachusetts ARS Fleamarket**, Wellesley Senior High School, Wellesley, MA. Contact David Kent, N2AWG, 508-875-2126.

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# Contest Calendar

a monthly feature by  
FRANK ANZALONE, W1WY

## NEWS/VIEWS OF ON-THE-AIR COMPETITION

**A**pril usually signals the start of spring, antenna work, and ham conventions. The International DX convention at Visalia starts off the month, and the Dayton Hamvention ends it in fine style. Check out the contest and DX programs, as well as the many hospitality suites at both conventions. Your guest columnist can often be found holding up a wall near one of the many Dayton hospitality suites.

For those planning to operate the WPX contests, please check the current rules in the February issue of CQ. There has been a minor change in the definition of a prefix, as well as some changes in the trophy list. Also, the 28 MHz Novice/Tech trophy for the SSB contest will be continued for another year. This award is only open to US Novice/Tech ops in the continental US.

Just before press time a new contest was announced—a USA-USSR Contest. At this time all details were not available, but further on in this column we have provided as much information as we received.

My apologies to any contest that got left out this month. This was put together at the very last minute due to the illness of W1WY. Hopefully Frank will be back next month.

73 and CU in the contests.

Steve, N8BJQ

### CQ WPX SSB Contest

0000Z Mar. 25 to 2400Z Mar. 26

This is the 33rd running of the WPX contest. Please see the complete rules and the current trophy list in the February issue of CQ. Summary/log sheets are available from CQ Magazine or N8BJQ for an SASE. Please write **WPX FORMS** on the envelope to speed up processing. All logs go to **CQ Magazine, 76 N. Broadway, Hicksville NY 11801**. Mailing deadline is May 10th for SSB logs and July 10th for CW logs.

### Polish "SP" DX Contest

1500Z Apr. 1 to 2400Z Apr. 2

Sponsored by the Polski Zwiagek Krotkofalowcow (PZK), this one is usually held the 1st weekend of April, and generates a good level of activity by the SP's.

**Classes:** Single operator, single and all band; Multi operator, single transmitter (all band only), and SWL.

c/o CQ magazine

### Calendar of Events

* Mar. 18	YLRL "East Meets West"
* Mar. 18-19	Bermuda Contest
† Mar. 18-19	YL-ISSB SSB QSO Party
* Mar. 18-20	BARTG Spring RTTY Contest
* Mar. 18-20	Virginia QSO Party
* Mar. 19-20	Wisconsin QSO Party
* Mar. 25-26	<b>CQ WW WPX SSB Contest</b>
Apr. 1-2	Polish "SP" DX Contest
Apr. 8-9	Connecticut QSO Party
Apr. 8-9	Alabama QSO Party
Apr. 8-9	ARCI QRP CW QSO Party
Apr. 9	USA-USSR Contest
Apr. 12-14	YLRL DX/YL to NA/YL CW
Apr. 15	Holiday-in-Dixie QSO Party
Apr. 15-16	Georgia QSO Party
Apr. 15-16	IBM QSO Party
Apr. 19-21	YLRL DX/YL to NA/YL SSB
Apr. 29-30	Swiss Helvetia Contest
May 6-7	MARC County Hunters CW
May 13	Ten Meter Dash
May 13-14	Nevada QSO Party
May 20-22	Michigan QSO Party
May 27-28	<b>CQ WW WPX CW Contest</b>
May 28	ARCI QRP CW Sprint

\* Covered last month.

† See January issue.

**Exchange:** Signal report plus a 3 digit serial number.SP stations will include a 2 letter province abbreviation.

**Multiplier:** Polish provinces (total of 49).

**Scoring:** 3 pts. per QSO, times the number of Polish provinces worked (max 49).

**Bands:** 160-10 meters (no WARC bands).

**Awards:** Certificates to winning stations in each class in each country.

Mailing deadline for logs is 30 days after the end of the contest. Mail to Polski Zwiagek Krotkofalowcow, Contest Committee, P.O. Box 320, 00-950 Warsaw, Poland.

### Alabama QSO Party

1600Z Apr. 8 to 2300Z Apr. 9

This year's party is sponsored by the Birmingham Amateur Radio Club.

Each station can be worked on each band and mode. Mobiles and portables in Alabama can be worked each time they change counties. Alabama to Alabama QSOs are permitted for QSO and multiplier credit.

**Exchange:** RS(T) and QTH. County for Alabama; state, VE province or DX country for all others.

**Scoring:** 2 points for each phone QSO and 3 points for each CW QSO.

**Multiplier:** Alabama stations multiply total by the number of states, provinces,

countries and Alabama counties worked. All others use Alabama counties for their multiplier (total of 67).

**Bonus Points:** Mobiles can add 500 points for each county from which 10 or more QSOs are made.

**Frequencies:** CW—1810 and 50 kHz up from the bottom of each band. Phone—3900, 7260, 14300, 21360, 28400, 50110, 148.2 and 145.50 MHz. Novice—10 kHz up from bottom edge of each Novice band.

**Awards:** Certificates will be awarded to all participants. Special endorsements for top scorers in each Alabama county, US state, VE province and DX country.

Mailing deadline for all entries is May 15th. Mail logs to: Bill Levey, WA4FAT, 3164 Cahaba Heights Road, Birmingham, AL 35243. Include a large SASE for your certificate and contest results.

### USA-USSR Contest

0000-2400Z Apr. 9

Just before press time we received notice of this new USA-USSR Contest. The source was UA4AAW and the Central Radio Committee, details as translated by NT2X. CQ received the info via Doug Zwiebel, KR2Q.

The object of the contest is USA and USSR ops work each other (other DX need not apply). Categories are single op, all band; and multi-op, single transmitter, all band. CW only, SSB only, or mixed mode.

An unusual twist is that you submit only the 5 best hours of the 24-hour contest period. The 5 hours of claimed operation can be taken in up to 5 periods. A *period* must be at least 10 minutes in duration.

**Exchange:** USA—signal report, QSO number, and state. USSR—signal report, QSO number, and oblast number.

**Operation:** USA call CQ U. USSR call CQ USA.

**Bands:** 10, 15, and 20 meters only.

**Scoring:** We are not sure of the complete rules, but so far one point per QSO. It does not appear that there are any multipliers, though. We will try to get more information by the May issue.

Logs go to The Federation of Sport, Box 88, Moscow, USSR. At this writing no deadline was announced.

### DX-YL to NA-YL Contest

CW: Apr. 12-14 SSB: Apr. 19-21  
1400Z Wed. to 0200Z Fri.

This is a YL activity in which DX YLs will be contacting YLs on the North American Continent (KH6 & KL7 are DX).



All bands may be used, however cross-band, nets and repeater contacts do not count. Likewise, contacts with OMs do not count. The same station may be worked on each band and mode for QSO credit. SSB and CW are separate contests and require separate log sheets. You may only operate 24 hours out of the 48 hours and off times must be clearly indicated in the log.

**Exchange:** Station worked, QSO nr., RS(T), and US state, VE province or DX country.

**Multiplier:** US state, Canadian province or DX country. The multiplier is counted once only, not once per band.

**Scoring:** 1 point per QSO. Multiply total by sum of states, provinces and countries worked. There is a power multiplier for stations running 150 watts or less on CW and 300 watts or less on SSB. If you qualify, multiply your final score by 1.25 for your final score.

There is a penalty of 3 additional QSO's for each duplicate QSO removed from your log for which credit was taken.

**Frequencies:** CW—3555, 7055, 14055, 21195, 28195. SSB—3955, 7255, 14295, 21395, 28595 (plus or minus 15 kHz, and other frequencies used by DX stations).

**Awards:** Four cups will be awarded to 1st place winners, DX and NA on both SSB and CW. Two plaques will be awarded to the highest combined CW/SSB score (both DX and NA winners). Certificates will be awarded to the 2nd and 3rd place winners.

Submit separate logs for each contest, including a summary sheet showing the scoring, transmitter power and other essential information. The usual signed declaration is also requested. Entries with more than 200 QSOs should use a separate sheet for each band and include a dupe sheet.

Entries must be postmarked no later than May 2nd and should be sent to Carol Shrader, 4744 Thoroughgood Dr., Virginia Beach, VA 23455 USA.

### Holiday-in-Dixie QSO Party

1700Z to 2200Z Saturday, April 15

The Holiday-in-Dixie Celebration is an annual 10-day event commemorating the Louisiana Purchase and is held in Shreveport and Boosier City, Louisiana. The QSO Party is one of the many events during the celebration, and demonstrates ham radio to the public.

**Exchange:** Name, QTH, and RS(T). (Be sure to get the operator's name.)

**Frequencies:** SSB is the primary mode, 7.235, 14.245, 21.385, and 28.400 MHz.

**Awards:** A Holiday-in-Dixie certificate will be awarded to all participants.

Send your QSL card and an SASE to: Holiday-in-Dixie QSO Party, c/o WA5ARJ, P.O. Box 4842, Shreveport, LA 71134.



Here is Tack Kumagi, JE1CKA with XYL Kayko and son Tack Jr., the morning after the 88 CQ WW CW Contest. Tack turned in a fine score as KH0/JE1CKA. Many of you know Tack as a top notch CW contester and contest editor for many Japanese ham radio publications.

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FUNCTION

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ID(Sta): W0RBC	Name: CHAR	City: DENVER	State: CO
Date: 08-10-88	Begin: 21:05	End QSO: 21:07:22	Freq: 20.405.0
Type (mode): USB	My RST: 69	His RST: 69	Power: QSL:

Remarks: **Data Base / Status Window**

Status: IT/R1 [CLS] Manual Mode [CLD] [Sw/F] [Qu/eX]

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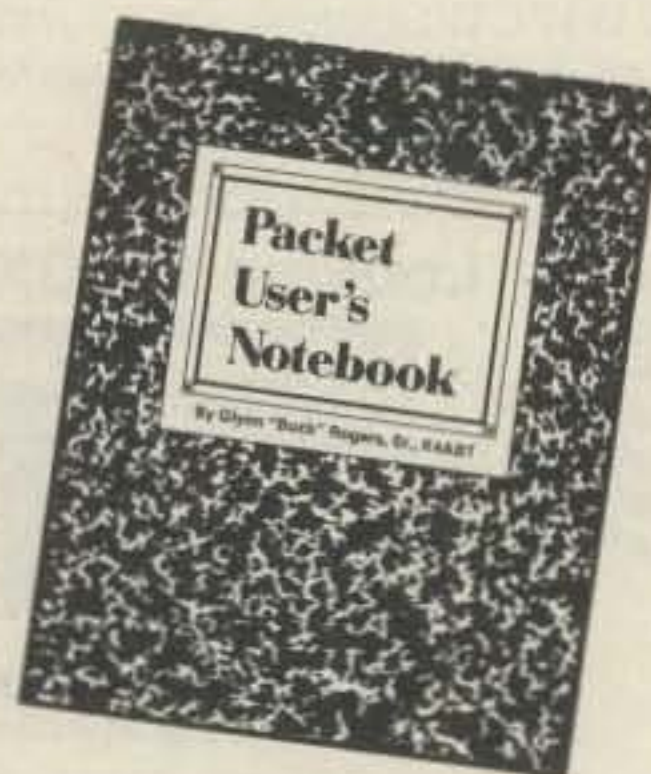
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## Georgia QSO Party

2000Z Apr. 15 to 2400Z Apr. 16

Sponsored by the Dixie DXers. Look for activity from all 159 Georgia counties.

**Classes:** Single operator fixed, mobile and portable, both on CW and phone.

**Exchange:** RS(T) and QTH. County for Georgia stations. State or DX country for non-Georgia stations.

**Scoring:** One point for phone QSOs, 2 points for CW QSOs and 5 points for QSOs with a GA Novice/Tech. The same station can be worked once on each band for QSO points.

**Multiplier:** For Georgia stations, the total of US states & VE provinces (60) plus DX countries (10 max). For others, the number of Georgia counties worked (159 max).

**Final Score:** Total QSO points from all bands times the sum of the multiplier.

**Frequencies:** CW—1810, 3550, 7040, 14050, 21040, 28050 kHz. Phone—1860, 3830, 7230, 14280, 21340, 28450, 28550 kHz. Also check the Novice CW bands.

**Awards:** Certificates in each class to top scorers in each state and Georgia county as well as top DX station on each continent.

Mailing deadline for logs is June 1st to Al Roloff, N4UZ, Route 1, Box 204, Bremen, GA 30110 USA.

## Swiss Helvetia Contest

1300Z Apr. 29 to 1300Z Apr. 30

This is a good chance to build up your Canton total for the Swiss Helvetia Award which requires confirmation of all 26 Cantons.

**Frequencies:** 1.8–28 MHz (no WARC bands). Phone and CW.

**Exchange:** RS(T) plus a 3 digit serial number. Swiss stations will also include a two letter abbreviation for their Canton.

**Scoring:** Only contacts with Swiss stations count. Each contact with an HB station is worth 3 points. You may only work a station once per band regardless of the mode.

**Multiplier:** The sum of the Cantons worked on each band (26 per band).

**Final Score:** Total QSO points multiplied by the sum of Cantons worked.

**Awards:** Certificates to the top scorers in each country and each USA and VE call area.

**Logging:** Indicate a Canton in a separate column for each band the first time it is worked. Check your log for duplicates and include a summary sheet showing the scoring information and your name and mailing address in block letters. Also include the usual signed declaration.

Mailing deadline for contest logs is 30 days after the contest. All logs to: USKA Traffic Manager, Walter Schmutz, HB9AGA, Gantrischweg 1, CH-3114 Oberwichtlach, Switzerland.





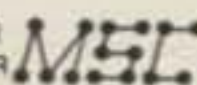
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\*ICS—Intermittent Communication Service (50% Duty Cycle 5 min. on 5 min. off)

CIRCLE 173 ON READER SERVICE CARD





### *Where is Amateur Radio Going? FCC Official Comments on Lack of Growth*

**A**rlan Van Doorn, Deputy Chief of the FCC's Washington, D.C. Field Operations Bureau, made a presentation to the Northern Virginia FM Association in Falls Church, Virginia on January 15, 1989. His comments make must reading for every amateur radio operator. The NVFMA is one of the D.C. area's largest radio clubs. It has many accomplished members from the high-tech world of defense and telecommunications around Washington.

The Field Operations Bureau operates the many Commission district offices across the U.S. and is responsible for enforcement of radio communications regulations and treaties. Van Doorn's presentation was personal; he was not speaking officially on behalf of FCC. His talk touched on several subjects, but of particular interest were his closing comments about the future of amateur radio.

Arlan pointed out that when he was 11 years old, a friend of the family who was interested in radio gave him some books, one of which was an amateur book. This friend didn't even have a radio, just some books. This book got Arlan interested in radio and science, and he made up his mind at age 11 to work for the FCC some day.

#### **Ham Radio and Our Nation's Youth**

Arlan looked around the audience. "I don't see many young people here," he said. "You are aware of the 220 MHz issue; it was very political. My own glimpsing of what is going to happen is that the Commission is going to take a closer and closer look at amateur frequencies as time goes on. There was a time when you all were growing. You were doing something with the youth of America. It's not happening as much as it needs to.

"I am worried about the American amateurs. You used to have the banner cry that you were teaching people to build radios. This is what amateur radio is about. This is what we depended on. Now, you can go out and buy your gear; I don't mind that at all. You may do public service, but amateur radio is really a hobby service.

*National Volunteer Examiner Coordinator, P.O. Box 565101, Dallas, TX 75356-5101*

It's beautiful that you do public service. You do wonders, you really do.

"But there is not an infinite number of frequencies available, and the demands of this country and of the rest of the world are becoming so great that it is squeezing everything. Everything is having to be looked at. You can't say 'Hey, I've had this and I'm going to keep it.' It doesn't work that way anymore. I'm sorry; times have changed. There are too many requirements and the almighty dollar has a lot to do with it.

"Stop and think. The youth of America are where your ranks are. Amateur numbers are going down. People are dying off. Are there not ways that kids can be shown and taught and helped? You've got an opportunity and I think you're missing it. There is an unchallenged group out there. I used to go to the schools and talk to the kids and try to encourage them to go into engineering and areas like that. How many of you do that?

"I've been in the FCC since 1967. In my eyes, the amateur community has been going down in numbers. You may disagree with me that in certain areas it may not be, but I think that overall the numbers of amateurs are going down. I go out and talk to the groups and the average age that I see sitting in the audience is not 18 or 19 years old. There are kids out there who could use somebody that invites them to the house sometimes to see what goes on with amateur radio.

"Yes, it takes an effort. We have enough problems in this country with the youth. It is an effort, very miniscule in this great big picture of things. In this country, we have gone over the years claiming that when we get into wartime, this is where the radio operators will come from, this is where they get the training. We're lacking that now."

#### **The Shortage of Radio Spectrum**

"The Commission made a decision in the 220 case. It was not based upon my opinion as to whether or not there was enough amateur usage there. I had nothing to with that decision. But what I am seeing is that unless you decide collectively in the amateur community to rally forth, I think there is going to be more and more pressure on the frequencies that

you have. It is a hobby service, and there are legitimate economic reasons why those frequencies are precious.

"There will be more and more pressure put on you all. If you want to protect the frequencies, your safety is in numbers. Whether it be the youth, the ACLU, the blacks, the Hispanics or anybody else in this country, it's going to be in numbers. The Commission, as does Congress, bows to numbers. Not to one individual, but to numbers. If it takes untold thousands to turn something around, then that's what it takes. But if you don't have the numbers, you aren't going to hack it. Somebody else is going to get in there and put pressure on the Commission to do something else with it."

#### **Growth in The Amateur Radio Service**

Growth in the Amateur Radio Service effectively stopped when two events happened: (1) The FCC declined to establish a class of amateur radio license which would not require proficiency in the International Morse code, and (2) the CB boom came to an end. Coincidentally, they both occurred at precisely the same time. Had a no-code entry into amateur radio been approved, we probably would not have noticed any change at all. "No-code" participants would have replaced CB recruits. Amateur radio still would be growing at 5%. If it had, we would have more than 550,000 licensed amateurs, about 110,000 more than we have now.

Five years ago the Commission was considering Docket 83-28, which proposed to eliminate the Morse code requirement from the Technician class license. The issue came up for a final determination at a December 14, 1983 FCC open meeting. Private Radio Bureau Chief Bob Foosaner told the Commissioners "... the Amateur Radio Service is well. It's thriving ... growing ... and providing an excellent service to the American public."

He said the comments "ran 20 to 1 against removal of the Morse code requirement" and that the "slow code requirement was not an unreasonable burden and does not appear to have critically effected the entry of new licensees into the Amateur Radio Service." He was



right! Ham operators had increased from 250,000 to more than 400,000 in the prior 10 years. In concluding his presentation, Foosaner said the Private Radio Bureau recommended that the code requirement be retained. "We endorse the service as it is and bury the concept of 'no code.'"

A February 1984 editorial in *QST* entitled "No Code: Buried Once and For All" written by Dave Sumner, K1ZZ, the American Radio Relay League's general manager (now called its executive vice president), ends with this glowing statement: "It is gratifying that the FCC has entrusted us with the responsibility for seeing that amateur radio grows and develops on our terms, rather than theirs—and with the Commission's continued support, so we shall!" Sounded great, but the fact was that it wasn't "us" controlling growth. It was the ready availability of thousands of CB radio enthusiasts, who, having their radio communications appetites whetted, opted to move up into amateur radio.

Sumner's editorial was written *exactly five years ago*, when no-code was (to use FCC wording) "put to rest once and for all." The amateur ranks stood at about 415,000. Today there are 438,000 amateurs in the FCC active database—an increase, but only about 1% per year. We may even have less amateurs than five years ago because of changes in the way the FCC purges their data base of U.S. amateurs and the effect of the ten-year license.

The average age of the American amateur is now well up in years and "silent keys" whose renewal date has not yet come up may well exceed the number of new amateurs entering the service. The lack of growth is particularly distressing when you consider that there has never been more amateur license examination opportunities than there are today, and the FCC increased beginning amateur privileges a couple of years ago.

By contrast, in the previous five years—1978 to 1983—the increase in U.S. amateur radio operators was approximately 58,000, or more than 3% a year. Five years previous to that, the ARS gained 110,000—from 250,000 participants to 360,000. The growth rate from 1973 to 1978 was 7.5%. Overall, the Amateur Radio Service expanded some 5.3% during the ten-year period ending in December 1983. Bob Foosaner's statement was true. Amateur radio was alive and well—that is, as long as CB radio was alive and well. When it died, amateur radio went with it.

Some of us *look down* on CBers, but we should *be down* on our knees thanking Citizen's Band radio for providing us with a pool of amateur radio candidates. There is no doubt that amateur radio growth—or the lack of it—closely parallels the rise and fall of the Citizens Band Radio Service. Without the CB boom of

the seventies there is no telling what state the Amateur Radio Service would be in today. My figures, by the way, come from FCC OPP (Office of Plans and Policy) Working Paper No. 20, Aug. 1986, entitled "Alternatives for Improved Personal Communications" authored by FCC engineer Jim McNalley, WB3APV, and also GMRS KAB-0689 and CB KDN-6063.

My view has always been that amateur radio has the responsibility to provide its own pool of candidates, and then, through the incentive licensing system, let those who wish to—or who have the desire, talent, capability, ambition, intelligence, or whatever—rise through the ranks. The amateur radio education system only works if you have a multitude of candidates at the bottom, as Japan has well learned! They have more engineers per capita than any other nation.

The ARRL's Canadian Division separated from League jurisdiction during the mid-1980s. Its two amateur organizations then supported a plan to restructure their Amateur Service to include an entry at the VHF level without Morse code proficiency.

It was I who sounded the initial no-growth/no-code alarm. I contacted Ray Kowalski during the fall of 1988 and asked him what it would take to get an amateur radio licensing structure adopted in the United States similar to that planned for Canada. Ray, now a private Washington, D.C. communications law attorney, was an FCC official in the Private Radio Bureau when the no-code issue was being considered. In fact, Ray sat right next to Bob Foosaner as he was making the pitch to the FCC Commissioners to retain the code requirement. It was Kowalski's feeling, however, that amateur radio placed far too much importance on the code requirement.

Ray sent me a four-page letter which I circulated to several hundred prominent amateurs, publishers, amateur and non-amateur organizations, and members of the amateur radio industry. I said I would start off an Amateur Radio Expansion Fund with \$1,000. The response was very positive and many chose to also contribute. The fund was established and Ray Kowalski retained to act on behalf of amateur radio growth.

The fund, by the way, was not easy to establish. Banks require special paperwork from the state to create such holding accounts. I had to go to the courthouse here in Dallas, file documents, and pay a fee to legally establish the Amateur Radio Expansion Fund. The "fund" is growing, and if you would like to make a contribution, the address to send your check to is: Amateur Radio Expansion Fund, P.O. Box 565206, Dallas, TX 75356. **One-hundred percent of these funds will be used exclusively to fund the legal effort to get amateur radio growing again.** We need your support.

Whether or not we want to admit or accept it, the world of amateur radio has changed. For the most part, the early analog experimenter is now a digital operator. Newcomers are not interested in being force-fed aural telegraphy or the traditions and communications of yesterday. Over the years I have watched the ham fleamarkets (my personal gauge of public and amateur interest) become outlets for chips, disks, computers, software, and other computer-related paraphernalia. The younger enthusiast seems to be the one "buying." We can talk all we want about how easy it is to learn slow-code, but beginners—particularly computer-oriented newcomers and youngsters—aren't interested and aren't doing it. Try and find a telegraphy key at a fleamarket.

Our hobby is now many hobbies within a hobby. We have the DXers, VHF, the experimenters, the emergency-preparedness people, the computerists, and many others. I have personally talked to several organizations (such as AMSAT [Amateur Satellite Corporation], TAPR [Tuscon Amateur Packet Radio], Boy Scouts, and REACT, among them) and plainly put, the code is a burden to them.

## Industry Excluded From Amateur Radio Decisions

Members of the amateur radio industry are particularly frustrated since they know what is going on in Canada, that being a government-approved VHF entry into Canadian amateur radio without a code requirement. They saw little or no chance of the League going along with such a program in the United States. Industry sales, to use words from one of its own, are "dying on the vine."

Every organization of users that I know of includes members of their industry in their group, but not amateur radio. They are specifically excluded from ARRL participation since their views are considered self-serving. That position needs to be changed, since they are an increasingly important part of amateur radio now that nearly all transceivers are commercially manufactured.

I set the plan in motion by authorizing Ray Kowalski to make a formal presentation on behalf of a coalition of concerned amateurs and industry to Ralph Haller, N4RH, Private Radio Bureau Chief. The December 2nd presentation was on "Growth of the Amateur Radio Service, The Number One Priority for the Next Decade." Ray Kowalski immediately sent a copy of his December 2nd FCC formal presentation report to Dave Sumner of the League.

In another unrelated development Don Stoner, W6TNS, of Mercer Island, Washington, subsequently agreed to form a group that would support any no-code efforts, but not initiate them. Although it was never the intention of the National



Amateur Radio Association to file any petitions, somehow the public got the idea that NARA was anti-ARRL. My involvement in NARA confused the issue, since it was perceived that I too was anti-ARRL, which is not true.

Between Morse code "signing off at sea" (the maritime radio operator is to become a thing of the past), goings-on in Canada, my effort (primarily with members of industry), Kowalski's letter and meeting with Haller on behalf of a coalition of concerned amateurs, and, yes, NARA's involvement, the ARRL now has clearly gotten the message that something needs to be done. I personally believe it *never* would have happened except for the above set of circumstances.

Eight days after the Kowalski/Haller presentation, the League's Executive Committee meeting in Baltimore voted that the ARRL President, Larry Price, W4RA, should appoint a six-member "ARRL No-Code Study Committee." Sitting on that panel are two members of industry—a startling and positive change of direction for the League. Previously they had been totally opposed to the

"tainted" industry being involved in amateur radio decisions.

ARRL President Larry Price, W4RA, has named ARRL Vice-President George Wilson, W4OYI (Owensboro, Kentucky), ARRL Pacific Division Director Rodney Stafford, KB6ZV (San Jose, California), to represent the League on the "no-code" study committee. John Crovelli, W2GD, of Milford, New Jersey and Ken Kopp, K0PP, of Anaconda, Montana will represent the general amateur community, while Mike Lamb, N7ML (Snohomish, Washington), Chief Executive Officer of AEA, and Radio Shack's Ed Juge, W5TOO (Burlison, Texas), will represent amateur radio industry interests. In addition there will be three organizational "liaisons": Dave Sumner, K1ZZ, ARRL Executive VP; Tom Atkins, VE3CDM, Canadian Radio Relay League President; and Leland Smith, W5KL, President of QCWA. The panel is a good one, and I believe they will give the no-code issue a thorough airing out and will make an appropriate recommendation to the League's Board of Directors.

Ralph Haller told Kowalski that any

proposals should have broadbased support within the amateur community. Kowalski also is widely quoted as saying when Docket 83-28 was killed that "this Dracula had a stake in its heart and only the ARRL could pull it out." It appears now that many—and particularly the amateur industry—are seeing a change at the ARRL in their no-code thinking and are very excited about the turn of events. Everyone—and particularly amateur radio and our nation—could come out a winner!

There is no doubt that League support would make the job of attaining a no-code license much easier. In fact, I believe it would almost guarantee its establishment. NARA is being perceived as a potential threat to the League and my NARA involvement viewed as an impediment to industry's involvement with the ARRL No-Code Committee.

A member of industry made the statement to me that NARA may now represent a serious obstacle in the no-code effort. He said that industry by supporting me, a NARA director, was in effect supporting NARA. Industry can't support two efforts which some regard to be in direct opposition to each other. I counseled extensively with Ray Kowalski on this matter and he agreed that I should resign even though all that NARA is doing is publicizing amateur radio and supporting the establishment of a no-code entry-level class.

Another concern has developed, however, that being that the ARRL's advisory committee may be just that, and in the end the League membership will make the decision. This could be a very black cloud hanging over the establishment of a no-code license class indeed.

Many of you have taken time out to write to us about your feelings on the creation of a VHF no-code entry amateur radio class. We appreciate your letters. Although not everyone is in favor of dispensing with the code, our mail is running about four-to-one in favor of some sort of beginner code-free license without a telegraphy requirement. This strangely runs 180 degrees out of phase with the historic views of ARRL members. Could it be that League views do not necessarily represent those of the amateur community?

The letters that oppose any change in the amateur radio licensing prerequisites do, however, seem to have a common thread among them. These writers are concerned with congestion and "undesirables," particularly on repeaters in the 2 meter amateur band. They view the "code" as a means of reducing congestion while maintaining "quality." While it certainly will reduce congestion since there will be fewer operators, there is no evidence that knowledge of the International Morse code ensures a superior amateur radio candidate.

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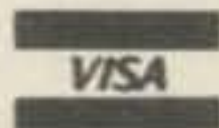
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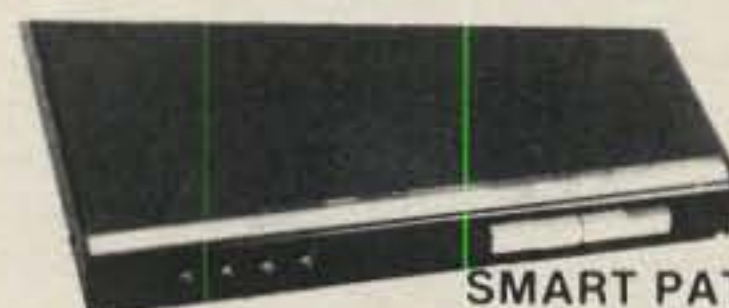
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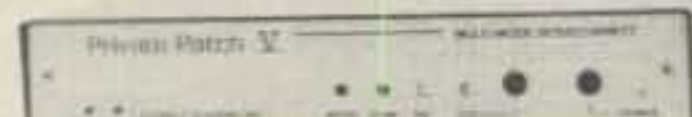
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## NEWS OF COMMUNICATION AROUND THE WORLD

*Out of the shadows of night,  
The world rolls into light.  
It is daybreak,  
And DX is everywhere. . . .*

If one hangs around the lower edge of the bands long enough, one will learn that there are questions which do recur over the years, though the answers may appear to be obvious. But the obvious only lasts until the question is asked again. What might be obvious to some is still a question to be asked by others. A week or so back we again heard one of the enduring questions: "Why do you waste space with all that common DX stuff? Why don't you just print the real and important DX information?"

The first time the question was heard a couple of decades back, our startled response was to ask, "Like what?" This was years back in the mid-sixties and the eager DXing one was quick to reel off his interests. "Burma, Clipper-ton, Bouvet, and Albania," he gave for starters. "And China, Franz Josef, Tibet, and Heard Island," he continued. "Important ones like those. Forget the common ones. Just write about the good stuff!"

This one was just a couple off the Honor Roll. He was not interested in what he had already worked; he thirsted for the unattainable. The countries he named had not been on the air for some years—decades in some instances. And they would hardly show without the drums rolling to announce their entrance. The drums, however, were silent. While many thought of putting one of these on the air, there were problems, and the problems were higher than the hopes. Eventually most of them showed, heralded long in advance so that the Deserving and needy DXer could be well prepared. But the need is never fully answered, and what one worked yesterday is quickly forgotten. One then looks forward in anticipation for what new DX might be coming out of the shadows of the night. But that is the way it has always been for DXers. Look to the morrow; forget what you already have. Yesterday is a memory; tomorrow will bring some of the needed ones. Absolutely!

Another question that comes at times is how some good DX showed without being announced well in advance. When the question was first asked of us, we gave what was considered a simple and adequate answer: "No one told us about it?" The answer was judged neither simple nor adequate. We learned then that the belief existed that all the information in a DX bulletin was acquired by the editor listening on the bands. Considering that some DX is going on somewhere 24 hours a day and there are five DX bands to watch, it would be a notable effort for anyone to check all the bands for all the DX showing. And while many consider that DX bulletins have grown to be a necessary part of DXing, generally most bulletins are



*Those in the know (most any DXer) will stoutly claim that DXers never grow old. They defy the years. What do the years do to DXers? Hardly anything at all. Fifty years or so back W8DVS was a top DXer and right up at the head of the country counters. He was working DX before they ever thought of the DXCC Award. Ten years ago he was sailing around the world on a wind-jammer, the Yankee Trader. This is Jules Wenglare, now signing W6YO and proof that DXers never grow old. Possibly smarter, but never old.*

part-time efforts. Even when they are full-time efforts, they depend on a lot of support. And it can be true that the more support they have the better DX bulletin they become. This concept that a DX bulletin editor gathers all the information he uses first came to us some decades back. In recent weeks we again ran into it. Perhaps when there is fuller knowledge of some of the obvious mysteries of DXing, the question might be less frequently asked. Perhaps, but we doubt it.

It has been noted at other times that one of the major DX bulletins and a pioneer in bringing the needed information to DXers was Geoff Watts' "DX News Sheet" published in England. This was the acknowledged leader, crammed with DX information and jammed onto one side of a legal-size 8" x 14" sheet. Widely circulated and long regarded as authoritative, this bulletin was published by a nonamateur, an SWLer who became impatient with the availability of information and started his own service. If you should wonder, in these later years, just how good it was, you might note that Geoff Watts is in the DX Hall of Fame, the only non-amateur ever to be so honored.

On the question of the wasting of time with the "common" DX news while there is such a need for the important stuff such as Burma or Albania, most will readily recognize that if there were any solid information on Burma or other needed ones, every DX bulletin in existence would be scrambling to spread the word. Let there be but a whisper—be it speculation, wistful hope, or vague promise—that Burma or Albania or some others might show and the DX bulletins will be covering every possible angle.

But beyond eternal hope must be the realization that DX is a relative thing and mostly relative to what you have not worked but still need as a DXCC counter. One DX bulletin editor, while always scratching for the big stories on possible earth-shaking operations, would frankly state that he aimed to cover the needs of DXers around the 200 country mark. His premise was that most DXers can get to that mark by diligently working the DX vineyards, but from 200 to 300 countries they are often a bit harder to come by and help is usually needed. Beyond the 300 country mark one must learn patience—to wait and hope and to eternally alert because there is little else for the needy DXer after 300 countries are on the wall. The 300 sticker often marks the end of the good days in the land of DX milk and honey and the entry into the Great DX Desert. The 300 country sticker has been the ruin of and the end of hope for more than one DXer. Many learn to dread the DX life of scarcity that they find when they cross the pass marked by the 300 sticker. It marks the attainment of a DXCC goal. The Honor Roll is within sight, but the fat days of DXing are gone and only a thin hope remains. For some it is not enough. They are unable to live without new ones—not for very long, anyhow.

It marks the end of innocence. The wistful years are at hand, and then one starts asking the question, "Why don't they publish just the important DX information? Information about Burma and Albania and the important ones like those?" While the questions come anew, the answers are old. There is no news about Burma or Albania, only hope. And you need a lot of that. All you can get.

DX bulletins are always group efforts. Each bulletin editor must work to develop his sources, to stroke and groom them until they are part of a central DX effort in publishing the bulletin. There is a multitude of DX information available. The problem for the editor is to get it and get it in time to be useful. Some DX editors will work hard at this news gathering. And often the value and success of a DX bulletin will depend on the effort put into gathering DX information and gathering it quickly.

Some DX bulletins stick closely to reporting DX and just about nothing else. Other bulletins are possibly more expansive, perhaps even garrulous. They believe that all DX information is of some value and interest, that true-blue DXers never tire of reading about DX, and such bulletins will cover wide areas of DX information. At times the scope of the coverage can be surprising, some even saying that this absolutely accounts for DXers being so smart and well informed. No DXer will ever argue that concept. No true-blue one for sure.

DX bulletins are considered by many as a natural adjunct to DXing. However, you will find their counterparts in few other activities in amateur radio, if you find any at all. But while DXers early on learn to value a bulletin's worth, they still must be considered largely a cooperative effort, to some extent similar to the 2 meter DX alerting systems. They work because of this factor and not merely because

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2034	DJ733	2039	YC5ODQ

### CW

2555	YU2GIJ	2557	VE7CXN
2556	NQ5C		

### WPNX

240	KA0WBO	241	KA5TTO
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### Endorsements

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S.S.B.: 350 NK2W, YU2GIJ, CP8GB, OZ1DYI, W9LCR, NL7NF, 400 YU2GIJ, CP8GB, NK3U, 450 YU2GIJ, CP8GB, NK3U, 500 YU2GIJ, 550 KA9MOM, 600 W3FDU, 700 KB0G, 850 WA4WIN, 900 K3IXD, 950 OK2EC, 1000 OK2EC, 1050 OK2EC, 1100 OK2EC, 1150 I2EOW, 1200 N2AC, W9VEN, 1600 I1POR, 1650 I1POR, 1700 NJ0C, 1750 NJ0C, 2400 I0AMU

CW: 350 I1POR, VS6UW, W8LRY, YU2NA, OK3THM, 400 I1POR, VS6UW, W0ULU, W8LRY, YU2NA, OK3THM, 450 I1POR, WE2P, YU2NA, OK3THM, IK2ECP, 500 WE2P, YU2NA, OK3THM, IK2ECP, 550 WE2P, YU2NA, OK3THM, 600 WE2P, YU2NA, OK3THM, 650 YU2NA, OK3THM, 700 I50FIC, YU2NA, 750 YU2NA, 800 YU2NA, 850 OK3CFF, JH2TPA, 900 JH2TPA, JA7FFN, 950 JH2TPI, KB0G, 1150 I7PXV, 1200 I7PXV, 1700 K8MFO.

10 Meters: WA2UDT, OK2EC  
15 Meters: WA2UDT, JE3AVS  
20 Meters: WA2UDT, KS3F  
40 Meters: WA2UDT, W9IAL, YU2NA  
80 Meters: WA2UDT

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of one dedicated worker taking on the task of publishing.

The bulletins in many instances have been a factor in the DX world gaining knowledge about certain notable DXers. Often they recognize early the exceptional work of some of the



Contesters should recognize the calls of these two members of the Bavarian Contest Club. Here in Luxembourg for the CQ WW DX Test is the 40 meter station with Hermann Samson, DJ2BW, in the background operating while Lothar Huebinger, DK5PD, is the second operator. They signed LX8A in the club's multi-multi effort. DJ2BW is a well-known FOC member. (DK7PE photo)

enterprising DX types and the good, maybe even noble, work that they do, things like bringing new or rare countries on the air. Everyone loves this type, and they love them even more when they learn of their work and are reminded how every DXer benefits from their great efforts.

Once we were at a League meeting where many different amateur activities were represented. This was in the days when traffic handling and emergency preparedness were considered the ultimate in amateur service, and strange as it may seem to some, DXing was a minor aberrant without stature, perhaps even without much honor. DXers were a clannish lot, speaking of people and places not readily recognized by many other amateurs. And, strange as this also may seem, there was nothing in the way of DX bulletins such as are known and available these days. DXers were not especially noticeable in those days at such League gatherings as the one remembered here. But during the discussions one obviously higher type of amateur, though not a DXer, in the middle of his remarks said, "... DXers are the top of the heap. They are the best. And they know it!"

The years since are gone, but the memory remains. And in those years still remembered, DX bulletins have grown to be a big part of the DX scene. DXers themselves have multiplied, and there are some who believe that the DX bulletins have helped DX attain its present stature. We may know where DX and DXers are today, but sometimes the reasons as to how and why we got there might be a bit less well remembered.

Understanding eventually comes. DXers are a far better informed and organized group than they were a quarter-century back. And undoubtedly some of the progress came from asking questions—a little progress anyhow and maybe a lot of questions. The years change, but the questions seem to remain. Some may think they are asked less frequently than they once were. Others tend to believe that DXers may be talking less but are listening more these days. Even "CQ DX" may still be heard, though possibly less than it once was. But this may still be an arguable premise.

Hardly arguable, however, is the impor-

tance of DX bulletins to the Deserving DXer. They answer a lot of questions.

## Western Sahara

In January the rebel Polisario Front agreed to meet with Morocco's King Hassan II in the first face-to-face talks in the 13-year history of fighting in the former EA9 Rio de Oro territory. Earlier there had been an agreement on a peace plan, this calling for a referendum on the future of the former Spanish colony. It was specified that the meeting would be for discussions, not negotiations.

A year back a United Nations mission arrived in the area to study the feasibility of holding the referendum. In April of last year Morocco announced the completion of another phase of its defensive wall aimed at keeping the Polisario Front out of the area which Morocco has claimed and is working hard to develop. The Polisario, for the first time in two years, launched a major confrontation, attacking the wall in its northern sector in February 1977. The same month there was an assassination attempt on Muhammad Abdulaziz, the Polisario Secretary-General.

The Western Sahara may not as yet be a vacation spot, and there appears to be some slight differences yet to be settled. However, the United Nations is working to settle the disputed claims. Morocco holds most of the former Spanish territory and has built a wall from the northeast area of the country down to the southwest area where the wall nears the ocean. There have also been intensive efforts to develop the mineral resources and economy of the former Spanish colony.

You can read anything you wish into the foregoing, but it does seem that things in Rio de Oro are possibly headed for a solution. If you have not worked this one yet, the time may be getting short. Some of the stations in this area are being reported as active, usually after 2000Z. Earlier this year the International DX Association reported that a new tribander had been shipped to S0RASD to replace the former one which was wrapped to a new configuration in a windstorm.

## Guinea-Bissau

Dave Heil, who signs K8MN back home, reports from "downtown Bissau" that in a year of operating J52US he has made over 30,000 QSOs, and his QSL Manager, WA8JOC, is having problems in straightening out his fingers, he being afflicted with writer's cramp.

Dave notes that he still spends a lot of time on the top band, even noting that it seems easier to work the suffering sixes and sevens on that band during contests than in quieter times. Other times it seems to be a case of mutual North American QRM time. However, Dave says to keep watching for him at his sunset time, your sunrise time, or thereabouts. Weekends are good times to watch for J52US, Dave usually being active about sunset time on the west coast.

J52US might be more active, maybe even louder, on 6 meters about the time you read this. Dave had received some 6 meter gear from the SMIRK group, assisted by help from WB8IGY, WA8OGS, W8NJR, VE1YX, and others. A solid-state amplifier had been shipped and was due a month or so back. Running the FT-620B on 6 brought QSOs with Europe, South America, and a few North Americans. VE1YX added a seventh band to his J52US



## The WAZ Program

### 10 Meter Phone

324 ..... K4RIG

### 15 Meter Phone

264 ..... JH5CKV 265 ..... JE7JZT

### 20 Meter Phone

712 ..... K8YSE 716 ..... WA2UUK  
713 ..... KF4CS 717 ..... N4MAD  
714 ..... I8IYW 718 ..... F1HWB  
715 ..... KA5YCM 719 ..... IK0GPP

### 40 Meter Phone

49 ..... I4YNO 50 ..... JA7HMZ

### 20 Meter CW

316 ..... SP5CJQ 317 ..... OZ7OP

### 40 Meter CW

90 ..... WA4CTA

### All Band WAZ SSB

3271 ..... KD9RD 3277 ..... JH4MHN  
3272 ..... 5H3RB 3278 ..... 8P6OV  
3273 ..... WB4ZIM 3279 ..... KA5WOO  
3274 ..... WA2UUK 3280 ..... N4DIT  
3275 ..... WA6ARG 3281 ..... KJ6BI  
3276 ..... KB6HW 3282 ..... TR8SA

### Phone/CW

6444 ..... NN7T 6451 ..... DK2UB  
6445 ..... JA1NIR 6452 ..... YU2QU  
6446 ..... DF6ZX 6453 ..... KJ4GK  
6447 ..... K7SLI 6454 ..... SM3PZG  
6448 ..... W8MFB 6455 ..... KG4W  
6449 ..... W8LRY 6456 ..... W9NT  
6450 ..... WB4ZBI 6457 ..... KF5EA

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QSOs, having worked him on all bands from 160 to 6.

In the coming contest season Dave does not plan to jump in too deeply, planning rather to try to offer Guinea-Bissau to those needing it for a new country. He does drop down into the Novice bands on occasion, as well as working below 28.5 MHz to give those in the subband a chance to work some rare DX. He does not appreciate repeat QSOs, saying that dropping in to say hello every time he is on the air tends to limit the possibility of those needing J52US working him. This also tends to be a problem on the top band when some big gun/big signals drop in at every opportunity to test propagation conditions.

What is it like to live in a spot as exotic as Guinea-Bissau? Well, the last plane in before Christmas brought no mail, no holiday greetings, and scant season cheer. Water and power are chronically short and social activities are at a low scale. He does miss regular mail service and finds amateur radio a balm to his soul and a prop to his spirits. When his assignment in Bissau is ended, Dave expects another African assignment, but has no word yet where it might be.

J52US is available, though it will not last forever. The rare can become common, the common can become rare, and it does happen. If you need this one, determine sunset time in West Africa. Just under 12 degrees north of the

equator, there is not a great seasonal change in the sunsets throughout the year. You can roughly figure it for about 6 o'clock and you will not be far wrong.

## Don Wallace, W6AM

During the last year or two there has been mention of efforts to establish a memorial to Don Wallace, W6AM, who was a top DXer and whose enthusiasm for DXing remained high for well over a half-century. Jim Neiger, N6TJ, supplies more information on the status of some things. During the 70s and 80s and in the final years of W6AM's life, Jim was a close associate of Don at the station's QTH on top of the Palos Verde Hills west of Los Angeles on the edge of the Pacific. Jim writes:

"As you know, I had the great pleasure and honor to serve as the W6AM 'second op' from 1973 and on into the 80s. Guess it is safe to say I was more or less responsible for the introduction and set-up of the modern-era equipment into the W6AM shack, including the Collins S-Line and Alpha amplifiers that became the mainstay gear that Don operated for years prior to his passing in May 1985. Don and I labored together for many hours during all too many late nights to keep the station on the air. And I was rewarded with the rare opportunity to operate all of the contests of interest from 1973 into the 80s. But most important, Don was my good friend and as such I had the privilege of knowing Don as few did. I have heard there are those purporting to wish to memorialize Don through the establishment of museums. I have even heard that someone is representing that they are going to 'rebuild' Don's station at a site somewhere north of Los Angeles, including Don's 'favorite rhombic.' (Don's favorite was *not* the No. 15 European rhombic, as these people think. His all-time favorite was the No. 11 south on the long-path), and to even hold the W6AM quasi-annual Visitors Day. (*Don was Visitors Day. How can you do it without his presence?*)

"These same people are even saying that they're the trustee of the W6AM callsign! As you know, that's nonsense. The call dies with the man.

"Anyway, I just wanted to say that anyone who really knew Don Wallace would know that all of this is the absolute last thing he would want, and I can only imagine that the thought of someone carrying on in this self-serving manner would have Don turning in his grave. Don Wallace was the ultimate DXer, but he did it strictly for his personal satisfaction. He would want no one to try and replicate his legacy (they couldn't anyway). His desire would be to be remembered fondly by those who knew him.  
—Jim Neiger, N6TJ"

At times some have asked where in the Los Angeles area Don Wallace's QTH was. Should you travel through the Los Angeles airport, the Palos Verde Hills can be seen on the southern horizon. The coast makes a sharp turn to the east there. Don's QTH was atop the hills, and he would say that on a clear day he could see Catalina Island out to the south in the Pacific. Don Wallace, W6AM, was a member of the DX Hall of Fame being elected to it in 1978.

## Rotuma Approved

The ARRL Awards Committee voted unanimously to accept the DXAC recommendation to add Rotuma to the DXCC country list. Rotuma credit will be given for credits made on or after November 15, 1945, this being the date

## 5 Band WAZ

As of January 1, 1989, 200 stations have attained the 200 zone level.

New recipients of 5 Band WAZ with all 200 Zones worked:

SM6CST  
GW4OFO

The top 9 contenders for 5 Band WAZ are:

1. N4WW, 199
2. SP9PT, 199
3. K6YRA, 199
4. K9GX, 199
5. SP6JCY, 199
6. SV1ADG, 199
7. W2YY, 198
8. W7UR, 198
9. KB0U, 198

515 Stations have attained the 150 Zone level.

Applications and reprints of the latest rules may be obtained by sending a self-addressed stamped envelope (45 cents) size 4 1/2 x 9 1/2 to the WAZ Manager, Leo Haijsman, W4KA, 1044 S.E. 43 Street, Cape Coral, Florida 33904. Applicants should include sufficient postage for safe return of their QSL cards. The processing fee for all CQ awards is \$4.00 for subscribers and \$10 for non-subscribers. In order to qualify for the subscriber rate, please enclose your latest CQ mailing label with your application.

from which post WW II DXCC credit is counted. Both the recent 3D2XX and the 3D2XR operations back in 1982 will thus be credited. If there are other operations from Rotuma, these will be credited when documented. Should a DXer have previously submitted a Rotuma QSL for Fiji credit, he can resubmit the card for Rotuma credit and another Fiji QSL not from a Rotuma contact for Fiji credit. This possibility exists where a 3D2RX card was submitted for Fiji credit.

Rotuma credits will be given for cards received at the ARRL on or after June 1, 1989. Cards submitted before that date will be returned without action.

Rotuma was accepted as a DXCC country on the basis of Point 2(a) of the country criteria. This reads:

"Point 2: Separation By Water

"An island or a group of islands which is part of a DXCC country established by reason of *Government*, Point 1, is considered as a separate DXCC country under the following conditions:

"(a) The island or islands are situated off shore, geographically separated by a minimum of 225 miles of open water from a continent, another island or group of islands that make up *any part* of the 'parent' DXCC country."

The announcement noted that Rotuma is 285 statute miles to the north-northwest of Fiji.

For those who need to have the late word and the immediate clarification of a DXCC question, it might be noted that you can contact the DXCC Desk by using one of the following: telephone 203-666-1541, TeleFax 203-665-7531, or MCI Mail 215-5052.

We noted a recent mention of someone catching Don Search at his desk at 10 PM. The above listing might help to understand some of the delights in being the fount of all DX information. You may get a lot of attention, but sometimes very little sleep. The above numbers are the numbers for ARRL headquarters and not



# CQ... Calling all hams!

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- ★ Gatorland Zoo ★ Xanadu
- ★ Church Street Station

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—1989—

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	500	\$54.95	\$49.95	\$44.95
	1000	\$99.95	\$89.95	\$79.95

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WLA22M	4	11	12	61
WLA23M	4	22	12	87
WLA24M	3	23	18	109
WLA25M	5	11	20	82
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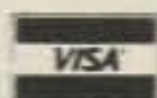
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Don's exclusively, though they usually will work just as well.

### Dayton Hamvention

About the time you read this there will still be time to plan and pack for the annual gathering of the amateur tribes at Dayton. The Southwest Ohio DX Association will again host the DX dinner, and perhaps that is all the information you need or are interested in. The dinner will be at the Stouffers Dayton Plaza Hotel on Friday, April 28th.

Thirsty DXers can start gathering for the exchange of tall DX tales before 6:30 PM when the bar will be opened; dinner is scheduled to be served at 7 PM. Dave Heil, J52US, will be home from Guinea-Bissau and will be the banquet speaker. Frank Schwab, W8OK, will be the Master of Ceremonies. The hotel must know how many to expect, and Scott Lehman, N9AG, is the one to take your reservation, so write to him at Box 803, Greenville, OH 45331, or call him on the telephone to make sure you have your front-row table. There are always a number of hospitality rooms for DXers at Dayton. Make sure you don't miss a single one. Dayton, the last weekend in April. Be prepared!

### Pakistan

AP2NK has asked that the word be passed along that it is illegal in Pakistan to receive green stamps (currency) through the mails. Sometimes this prohibition is difficult to understand and especially when you are not under any such controls at home. In some countries with weak currencies, or with exchange rates at an unrealistic rate, hard currency is sought for a multitude of illicit reasons. In some cases, just to possess it can mean big trouble. And while it might be sent through the mails with the best of intentions, it cannot only be embarrassing, but can subject the recipient (or addressee) to prosecution. Usually the Postal Manual covering international mails will be specific in advising what cannot be sent through the mails. In some instances the list is both long and surprising.

AP2NK says that if you want to do things up right, three IRCs will be welcomed. And despite occasional reports to the contrary, IRCs are good in every country in the world. It is so stipulated in the treaty of the International Postal Union to which all of the nations are signatories, or mail does not move beyond their own borders.

Should you wonder why we explained in parentheses the meaning of the term "green stamps," one learns early that DXers speak a strange dialect, and especially so when queries come as to what is meant by "CBA" or "SASE." Eventually one has to learn the hidden meanings to get the obvious message—that the explanation can be longer than the acronym. That's called putting it in plain English, of a sort.

### Woodpecker

This is a tough bird. For the DXer it must be the bird perched upon the bust of Pallas over the radio shack's door. It certainly has endured—evermore!

James T. Beckham of the FCC Field Operations Bureau released some information on the Woodpecker and it was printed in the Northern California DX Club "DXER." It may help to know your QRM, though we really do not understand why. Anyhow, here is what the FCC reported after making a week's study in

## The WPX HONOR ROLL

The WPX Honor Roll is based on the current confirmed prefixes which are submitted by separate application in strict conformance with CQ master prefix list. Scores are based on the current prefix total regardless of an operator's all-time count. Honor Roll must be up-dated annually by addition to, or to confirm present total. If no up-date, file will be placed into "inactive" until next up-date. Lifetime Honor Roll fee \$2.00 (U.S.) for each mode, with no fees required for up-dates.

### MIXED

3522	YU2AA	2103	SM7TV	1600	KL7AF	1273	N8BJQ	933	I2EAY
3460	F9RM	2082	N2AC	1565	N6JM	1216	A18S	900	KA1BAZ/DV1
3103	K2VV	2056	PA0SNG	1555	K8LJG	1203	YU1GR	884	WA4WIN
2946	W2NC	2055	W9NUF	1542	I1EEW	1195	JA6GWU	869	I5ZTC
2778	K6JG	2014	I6SF	1538	IT9TQH	1188	K7CU	835	OE1KJW
2754	VE3XN	1928	PY4OD	1527	K2POF	1172	KC8CC	809	W5ASP
2659	YU2TW	1899	K9BG	1480	HA8XX	1148	A16Z	808	YU1PJ
2564	W4BOY	1865	IN3ANE	1470	NN4I	1146	NE6I	787	W9IAL
2521	N4NO	1842	W0SFU	1467	DK5AD	1138	DF6EX	773	YU3PG
2502	K6XP	1842	SM3EVU	1441	W6OUL	1122	JA1WJ	773	KS3L
2493	W9DWQ	1828	4X4FU	1419	N2AIF	1116	I0AOF	750	F1HWB
2479	N4MM	1825	YU7SF	1418	YU2CQ	1107	YU7DR	750	K18B
2411	N6JV	1818	HA0DU	1414	SM0AJU	1101	W9IL	750	KC7EM
2256	I2PJA	1809	IT9QDS	1403	AB90	1094	PY2DBU	747	YU7RU
2255	N9AF	1802	KF2O	1388	YU1SZ	1080	K3UA	742	K5IC
2234	WA8YTM	1741	SM6DHU	1366	K2OLG	1050	KS0Z	729	W4WKQ
2201	YU1AB	1736	IS0LYN	1352	SM6CST	1037	G4OBK	719	KY3V
2184	PY1APS	1736	I2MOP	1350	AC2J	1034	5H3RB	697	N3KR
2181	EA2IA	1723	YU2NA	1345	YT7WW	1008	W0JIE	678	RB5MP
2159	YU7BPQ	1703	N5TV	1337	WB8ZRL	1000	NV9S	648	IK2BHX
2131	I8YRK	1699	YT3AA	1334	WE2L	998	SP5AA	641	JE2GMO
2128	N6CW	1654	KA5W	1329	W7CB	986	G4SDJ	617	IK2ECN
2110	YT7DX	1631	N6AW	1309	YU2TY	947	YU2GIJ		

### SSB

3386	F9RM	1736	I4CSP	1305	EA3AQC	1067	I2TZK	800	NE6I
3114	I0ZV	1732	NJ0C	1292	IT9TQH	1034	W0ULU	799	NK2H
2659	K2VV	1728	ZP5JCY	1290	PY4OD	1015	WA2FKF	797	KC2FC
2626	ZL3NS	1616	W9NUF	1274	EA4KK	1010	K8LJG	785	IK8GCS
2482	K6JG	1608	EA2IA	1272	W2NC	985	XE1XF	783	K3UA
2452	K2POA	1583	WA4QMQ	1251	KL7AF	983	G4SDJ	781	IK2DUU
2409	CT1UA	1550	CT1FL	1244	CT1BY	981	DK5WQ	757	KB0C
2298	I0AMU	1529	CT1FL	1230	SM6CHU	963	CT1AHU	750	F1HWB
2268	K6XP	1516	W3ARK	1228	IK5ACO	947	I2WZX	747	A16Z
2253	I2PJA	1504	G4CHP	1205	N2CIC	938	PY4OY	745	IK0EIM
2248	N4MM	1474	G4CPJ	1200	AB90	913	N2AIF	731	W5ILR
2209	VE1YX	1431	EA8AKN	1194	I2EOW	904	YB3CEV	712	VO1AW
2140	W0YDB	1415	KC8YM	1176	N2AC	903	K3IXD	698	I7UNX
2101	WD8MGQ	1406	I1EEW	1166	N6FX	885	W6OUL	697	VU2SMN
2090	I4ZSQ	1405	I8KCI	1162	NN4Q	860	K8ZJU	681	YC7DF
2033	CT4NH	1400	CT4UW	1153	PY4VX	860	CX6BZ	678	KB4HU
1957	W4BOY	1393	AC2J	1141	KC8CC	860	WN5MBS	675	DJ0AF
1915	N4NO	1387	W4UW	1114	I8WYD	859	KK5P	664	G4MVA
1906	OZ5EV	1375	N5TV	1110	LUBESU	831	I3ZSX	657	W5AWT
1861	I8YRK	1375	I5ZJK	1099	AG2K	825	LU1VK	649	WM5G
1816	W9DWQ	1353	YU2NA	1097	SM0AJU	806	N6CGB	636	LU8DWN
1801	PA0SNG	1341	HA8XX	1086	KE6KT	805	IT9ONV	618	CT1DIZ
1781	WA8YTM	1315	KA5W	1083	WB8ZRL	803	G4KHF	613	NM5Y
1744	I2MOP	1312	K5RPC	1071	KD9OT	803	IT9JKY	600	IT9CUE
1742	WF4V								

### CW

2688	W2NC	1729	LZ1XL	1188	KF2O	1038	SM0AJU	835	I2EAY
2565	K2VV	1672	N4MM	1146	N2AIF	1034	I2IWM	821	KQ3S
2426	WA2HZR	1641	PY4OD	1145	W9PWM	1025	LA9XG	806	OZ5UR
2397	N6JV	1628	WA8YTM	1142	F6HKD	1024	NN4Q	796	NE6I
2199	N4NO	1622	I1YRL	1138	I2UIY	1018	W6OUL	763	OE1KJW
2193	ON4QX	1605	VO1AW	1137	EA7OH	1017	HA5LZ	762	WB8ZRL
2154	VE7CNE	1595	4X4FU	1124	KA5W	1010	KN7K	750	W0JIE
2134	W3ARK	1583	W9NUF	1106	IT9TQH	969	G4FAM	729	K1BAZ/DV1
2074	K6JG	1408	IT9VDO	1099	AK2H	943	I8YRK	711	JA2GCW
2072	W9DWQ	1400	N5TV	1087	DJ1YH	920	A16Z	705	KA1CLV
2003	W4BOY	1398	I2DMK	1082	K8LJG	914	SM5DAC	703	G4UOL
1986	G2GM	1394	KA7T	1079	YU2NA	899	G3VQC	684	W5AWT
1927	K6XP	1261	SM6DHU	1074	VE1ACK	866	K3UA	667	YU3PG
1899	N2AC	1252	N6FX	1068	T14SU	861	HA8XX	659	AC5K
1836	YU7SF	1223	SM6CST	1056	YU3NU	852	G4SSH	642	IS0FIC
1779	OZ5EV	1220	K2POF	1055	YU2CQ	849	CT1LN	639	KU0S
1762	I6SF	1212	I7PXV	1048	OH3TQ	837	YU2GIJ	605	K7DBV
1745	EA2IA	1200	KL7AF						

which all 13 FCC Monitoring Stations participated. The findings are as follows:

1. The pulse rate remains at 11 to 11.5 pulses per second.
2. The pulse width remains at 4 milliseconds.
3. The lowest confirmed frequency was 7 MHz; the highest 19 MHz.

4. The lowest confirmed bandwidth was 20 kHz; the highest was 800 kHz.

5. The most occupied bands appeared to be 10.5 to 11.0, 12.2 to 13.0, and 16.0 to 17.0 MHz.

6. The least occupied bands appeared to be 9.7 to 10.5, 11.0 to 12.2, and 13.0 to 15.0 MHz.



## CQ DX Awards Program

### SSB

1651	WA5SUE	1654	SV1ADG
1652	F1HWP	1655	YU2OU
1653	WD6L	1656	NL7NF

### CW

738	YU2OU	739	WS5E
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### SSB Endorsements

320	N4JF/320	275	PY2DBU/281
310	IT9ZGY/317	275	N6CGB/279
310	I8XTX/311	275	WA4IUM/278
310	I8KCI/310	275	WB8TLI/275
310	YS1GMV/311	250	WA5SUE/270
300	SV1ADG/307	150	F1HWP/182
300	WD8PUG/306	150	YU2OU/166
300	G4ADD/303	28 MHz	YU2OU
300	K4LR/300	28 MHz	YS1GMV
275	WD9GQV/297	3.5/7 MHz	YS1GMV
275	KB8O/294		

### CW Endorsements

320	N4JF/320	150	WD9GQV/152
300	IT9ZGY/302	3.5/7 MHz	WS5E
150	YU2OU/181		

Total number of active countries is 320. The basic award fee for subscribers to CQ is \$4. For non-subscribers, it is \$10. In order to qualify for the reduced subscriber rate, please enclose your latest CQ mailing label with your application. Endorsement stickers are \$1.00. Updates not involving the issuance of a sticker are made free when an SASE is enclosed for confirmation of total. Rules and application forms for the CQ DX Awards Program may be obtained by sending a business size, No. 10 envelope, self-addressed and stamped, to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. DX stations must include extra postage for air-mail reply. Please make all checks payable to the awards manager.

7. The bandwidth mean was 150 kHz, the median 75 kHz, and with a standard deviation of 207 kHz.

8. The air time of a signal was, as a minimum, 7.7 minutes for the mean, 3.0 minutes for median, and with a standard deviation of 12.3 minutes.

9. All of the transmissions originated from a single location which was fixed by coordinates at 51 degrees 24 minutes north by 137 degrees 42 minutes east near the city of Komsomolsk in the USSR.

These observations are essentially in agreement with the findings of monitoring conducted February 23 through March 1, 1986. This appears to be the permanent pattern of operation of the "Woodpecker."

Anyone with questions or comment should be aware that these can be directed to James T. Beckham of the FCC at 202-632-6977. The Woodpecker has been around for over a decade, and it is just as much a problem to DXers as ever.

Possibly by now you are aware that the Woodpecker is the signal from an "over the horizon" radar array, generally believed to be used for maritime surveillance, and that it lurks in the phone bands mostly because it needs an environment with a minimum of interference with the pulse return. The radar has been jammed by some unscrupulous types, definitely not DXers, who zero-beat the signal and call their uncle at HH5HH, or any other callsign with a string of CW dots at 25 wpm. Sometimes it works, but the Woodpecker is still around. We once innocently inquired why the whole thing was not taken up with the proper authorities. We did learn that the problem was finding a courier at whom a reciprocal finger could not be pointed. Apparently, it was inferred, there is more trespassing in the bands than one might suspect.



Some top-band operators pause to discuss the Great Days of DXing at the 160 meter meet at Darmstadt in West Germany last year. In the middle is Peter Bobek, DJ8WL, who organized the gathering at Frankenstein Castle. On the left is Hans, DF2UU, and on the right is DL8GBH. DF2UU might well be remembered for his 9H3DX efforts. (DK7PE photo)

## The Big One

This is the term some astronomers are using when talking about the current sunspot cycle. The current cycle officially started in September 1986 when the cycle reached the 11-year minimum. Researchers at the National Oceanic and Atmospheric Administration at Boulder, Colorado say that from the nature of the increase in the radio emissions in the current cycle and a jump in the number of sunspots at the end of 1988, this cycle shows a lot of signs of being *The Big One!*

The December activity was taken as a clear indication that the sun was shifting into its most active phase, the active phase usually lasting four years. It is not expected that the solar activity will subside much below the present level until 1992.

Measuring the intensity changes in radio waves has come to be regarded as a more precise way to compare one solar cycle with previous ones, this being regarded as better than the sunspot number count. The present cycle is showing "an impressive fit" when compared to Cycle 19 of the fifties.

Keep in mind that the solar observation records go back only 250 years, and scientists continue to learn more about the sun and the sunspot cycles. Much of what DXers look at as common information on solar activity was not known or understood back in Cycle 19. But never think that it is not important and helpful. It is!

## Mozambique

C9MKT has a tentative schedule to show on April 7-9th, May 12-14th, and June 9-11th. Watch around 14195 kHz from 1600Z, 21335 kHz from 1800Z, 28595 kHz from 1430Z, or any combination of the foregoing. QSLs go to SM5DKM, who would also appreciate getting letters from amateurs noting and appreciating the C9MKT operation and urging the extension of his operating privileges as well as the extension of such privileges to other operators.

## Some Short DX Notes

This is the time of the year in many clubs when those who have labored in the club's vineyard move on up to the Council of the

Great-Hearted Elders, there to sit forever more in judgment on the direction of the club activities. And the fresh crop of shining-faced officers includes a list of worthy up-and-comers. Down by the Alamo in the Texas territory, the Alamo DX Amigos has found a new group of volunteers, these including K5DB as president, W5LUU as vice-president, NI5S as treasurer, and Larry Dillon, N5HB, as secretary.

On the banks of the Missouri the Kansas City DX Club elected Jerry Fisher, NX0I, president; Joe Scalet, WK0G, vice-president; Denise Hagedorn, secretary; and Tim Heger, KB0G, to another term as treasurer. Up in the northwest corner where the antennas make even the six-landers envious, the Western Washington DX Club elected a slate dedicated to progressive DXing, these including George Ockwell, K7BHN, president; Steve Morris, K7LXC, vice-president; Jack Wichels, W7YF, secretary; Doug Miller, WE7E, treasurer; and Morris Shepherd, W7LVI, and Bill Peck, N7FSW, trustees.

The International DX Association notes in its bulletin the plans of the West Siberia DX Club, based in Omsk, to put on some future operations, including 3W Vietnam, XW Laos, 7O The People's Republic of Yemen, and ET Ethiopia. INDXA has arranged to make two complete stations available for the use of the West Siberia DX Club, and the Vietnam operation was on recently, set to run through the month of March. INDXA is the route for QSLs. Members of the West Siberia DX Club include RB5HT, UA9MA, UF6FFF, and UB5HA. There is even a report out of that area that Victor, RB7GG, is starting up a DX bulletin.

The Heard Island DX Association notes that the Lynx Group is marking time on the planned Yemen operation and still trying to work out the quirks. There is a report that a PA operator might be able to put a 4W1 station on the air before long.

In a recent action the Northern California DX Club voted Honorary Membership to Ron Wright, ZL1AMO, while the Kansas City DX Club voted Honorary Membership to Father Moran, 9N1MM.

Generally most DXers consider a QSL card as valuable for a number of things—covering nail holes in the shack wall, credit for WAZ and DXCC, and an enduring testament to the prowess of the holder of the callsign to which it was sent in verification. A recent brouhaha over the matter developed when someone raised a friendly question on whether the card submitted really reflected an actual contact. It developed that no log entry could be found for the claimed credit. Did that end things? Hardly at all.

The claimant hired a lawyer. The lawyer studied the rules and noted that the rules for the award only required QSL cards but said nothing about requiring log entries.

If you had to read that again, it is understandable. But that is the argument offered, and we can hardly wait to see how this one turns out. This could be one of those landmark decisions. It might be prudent to study the rules if you are involved in any award activity. One can be bitten by semantics, and that is not the name of the local watchdog.

While one can expect that every DXer is a natural heavyweight or is working hard at it, this coming from either visual observation or listening on the air, it might be noted that the Redwood Empire DX Club has had to ask the restaurant at the meeting spot to add "a lighter



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CIRCLE 121 ON READER SERVICE CARD



Two legendary figures in amateur radio. On the left is CQ's Lew McCoy, W1ICP and on the right, the renowned DXer, Katsushi Nose, KH6IJ. Lew and his wife Martha were in Hawaii this past January, celebrating their 50th wedding anniversary and Lew took the opportunity to stop over and spend some time with KH6IJ.

meal" to the menu in the future. Considering that Chod Harris of "The DX Bulletin" is the secretary of the club, there might be something there that only the initiates understand.

With Rotuma a new DXCC country, don't overlook the possibility offered by FO5LZ on Nuka Hiva in the Marquesas. This one has been showing often on 20, around 14236 MHz after 0200Z. An operation was planned for the ARRL CW Test and you might have caught that one. The Marquesas could be another 2(a) determination and it might be advanced strategy to catch one now. FO0BEF/p has also been heard from Ua Huka in the Marquesas and is often at 14222 MHz around 0600Z. There are a lot of explanations as to why the Marquesas will or will not count for a new one. Read them if you must, but work them now and worry later. Someone is bound to figure out something for your benefit. Believe that.

More than this might be stirring. There were months back some queries for material about Okino Torishima. Some may find the resurrection of this one beyond belief, but others say that we are moving into the Great Days of DXing and anything is possible. The matter was studied by the DXAC back around the start of the year, but it did not get the votes. But a true-blue DXer never gives up hope. Those in the know (most any DXer) believe that there are several more possibilities to be announced in the future.

The Hungarian operators who put 3W Vietnam on the air some months back ran up over 63,000 QSOs. "Inside DX" notes that N0ZO is in Iraq now almost a year, but has not been able to get permission to get on the air. Not that he has not tried. However, some of the Soviet operators who were headed for the March operation in Vietnam also did some speculating about Spratly, this for a few days on the en-route voyage. Eventually one learns that all DX

is possible, though definitely longevity is a plus factor. That plus a retired status, a high tower, and no garden. It takes time to learn all the eternal truths. Just reading them here is not always convincing. DXers like to learn things themselves, the hard way.

73, Cass, WA6AUD

### DX Ten Years Back

In April 1979 OE6XG/A was on his way to Abu Ail and Aves was due to open the last weekend on the month. 1A1DX was heard this April on a successful effort, the crew landing on Pearson Reef after getting some small arms fire from Amboina Cay. On the higher frequencies 13,000 QSOs were made. Some Swedish DXers were trying to unlock Albania and there were new prefixes for the U.S. stations out in the Pacific. OK3TAB in Angola survived the initial skepticism that it was only Slim and was being worked by the Believers. HV2VO was using a dipole on 15 meters to get on that band and WD8QGQ was suffixing KH7 from Kure. Former EP2LI was headed for Qatar to put A7X on the air; EP2LI was then currently in the States regrouping after setting a record in the cross-border dash when leaving Iran. PY0APS and PY0MAG were packing for a May effort from Fernando de Noronha and ZL1ADI was promising Manihiki about the same time. The Great International DX Convention was in Fresno that April. There were sunspots all over the place and the flux was pushing the 200 mark. It was a time for DXers and DXers were enjoying it.

### QSL Information

Ralph King, K1KOB, advises that he is not the route for AH2CA, he has the cards but cannot get the logs. Ralph suggests going direct. Also, the January issue listed N5IMM as the QSL Manager for 3D2YL. The correct call for 3D2YL is N5IMW.

AC200T to W4DYK  
 AH2CA not K1KOB  
 AA4NC/V47 to WB4QBB  
 CE0ZIG to NR8J  
 CV0Z to CX2CS  
 EL2JM to KA5ZMK  
 FO0BEF/p to FE1JCN  
 IB8A to IK8DOI  
 J7/F2JD to F6AJA  
 JT1KAA to JT1BJ  
 J52US to WA8JOC  
 K200EG to K4EG  
 K200RW to K0RW  
 P40I to K7RIE  
 PY1DFF/CE0 to PY1ROB  
 PY0FC to PY7XC  
 S07TN to OK1TN  
 T12EY to DF6EX  
 V31JZ to NN7A  
 V85MM to K1MM  
 VK8SR to K8RV  
 VK92M to NM2L  
 VK92W to VE3CPU  
 VK0NE to VK9NS  
 VK0GC to VK9NS  
 VU2GI to N2HOS  
 VU2UGI to N2HOS  
 ZY0F to PY7ZZ  
 5K3B to HK3NTI  
 5T5CK to DL1HU  
 9J2BO to W6ORD  
 XF4C to XE1BEF  
 AH2CA to Norm Mattox, Box 8423, N25MOV3, Guam, 96912  
 CE0ZIG to William Lester, 12909 Mathews St., Carleton, MI 48117  
 DF2UU/So. Pac. to Hans Peter, Hardbergstrasse 8, 7550 Rastatt, West Germany  
 F05LZ to Jean Claude, BP 41,

Nuka Hiva, Iles Marquises, French Polynesia  
 FO0BEF/p to FE1JCN, B.P. 5, F-63018 Blanzat, France  
 FT0ZA to J.C. Dehouillere, B.P.1, 13898 Aix en Provence Armee, France  
 IC0SDL to Box 37, Capri Isle, 80073 Italy  
 LU2ZC to GACW, Casillas de Correos 9, CP 1875, Wilde, BA, Argentina  
 LY2WW to Box 1573, Vilanaus, 232040 Lithuania  
 LY2ZZ to Box 71, Siauliai, 235400, Lithuania  
 PABGAM to Gerben Menting, p/a NEPOSTEL, BX 30000, Den Haag, The Netherlands  
 PY0FZ to HIDXA, Box 90, Norfolk Island, Australia 2899  
 T12EY to Manfred Meier, Box 1269, D-8595, Waldsassen, Federal Republic of Germany  
 TZ6MG to Box 2095, Lelystad, The Netherlands 8203  
 V31JZ to Art Phillips, Box 201, Flagstaff, AZ 86002  
 VU2GI to Jim Mortensen, 65 Holly Pl., Briarcliff Manor, NY 10510  
 YN3CB to Box 3733, Managua, Nicaragua  
 ZD8B0B to Box 2, Ascension Island, South Atlantic  
 3D0BAH to F. Maxwell, Box 2726, Mbabane, Swaziland  
 5K3B to Alberto Mondragon R., Box 55920, Bogota, Colombia  
 5T5HH to BP 1172, Nouakchott, Mauritania



**ATTENTION: WOMEN WHO SOUGHT EMPLOYMENT WITH THE VOICE OF AMERICA (VOA), THE UNITED STATES INFORMATION AGENCY (USIA), OR THE UNITED STATES INTERNATIONAL COMMUNICATION AGENCY (USICA) BETWEEN OCTOBER 8, 1974 AND NOVEMBER 16, 1984.**

**YOU MAY BE A VICTIM OF SEX DISCRIMINATION ENTITLED TO A MONETARY AWARD AND A POSITION WITH THE AGENCY.**

**UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA**

CAROLEE BRADY HARTMAN, et al.,  
Plaintiffs,

v.

CHARLES Z. WICK,  
Defendant

Civil Action No. 77-2019  
Judge Charles R. Richey

## PUBLIC NOTICE

On November 16, 1984, the United States District Court for the District of Columbia found in this class action lawsuit that the United States Information Agency (USIA or the Agency), including the Voice of America (VOA), is liable for sex discrimination against female applicants for the following positions at the Agency. The USIA was also formerly known as the United States International Communication Agency (USICA). On January 19, 1988, the Court issued its opinion ordering relief in a variety of forms to potential class members. Accordingly, this case is now in the remedial phase.

### JOBS COVERED

Specifically, the Court has found that the Agency has discriminated against women in hiring in the following jobs:

- Electronic Technician (Occupational Series 856)
- Foreign Language Broadcaster (Occupational Series 1048)
- International Radio Broadcaster (Other) (Occupational Series 1001)
- International Radio Broadcaster (English) (Occupational Series 1001)
- Production Specialist (Occupational Series 1071)
- Writer/Editor (Occupational Series 1082)
- Foreign Information Specialist/Foreign Affairs Specialist/Foreign Service Information Officer/Foreign Service Officer (Occupational Series 1085 and 130)
- Radio Broadcast Technician (Occupational Series 3940)

### WHO IS INCLUDED

All women who sought employment with the Agency in any of the jobs listed above between October 8, 1974 and November 16, 1984 and were not hired may be eligible for relief. Also included are those women who were discouraged from applying for these positions during that time period. Even those women subsequently hired by the Agency in some capacity may be entitled to participate in the remedial phase of this case.

Women who sought employment with the Agency as Foreign Service Officers or Foreign Service Information Officers may be eligible for different kinds of relief depending upon the date of application and whether they sought employment at the entry level or mid-level. Women who sought employment with the Agency as entry level Foreign Service Officers or Foreign Service Information Officers in the years 1974-1977 must use the procedure outlined below. Women who sought employment with the Agency as mid-level Foreign Service Officers or Foreign Service Information Officers in the years 1974-1984 must also use the procedure outlined below. However, women who sought employment with the Agency as entry level Foreign Service Officers or Foreign Service Information Officers in the years 1978-1984 cannot use the procedure outlined below, since the Court has ordered an alternative form of relief for them and selected women in this group will be notified individually as to their rights.

### RELIEF AVAILABLE AND HOW TO OBTAIN IT

Relief available to class members may include a monetary award and/or priority consideration for a current position with the Agency. If you think you may be entitled to relief, you must obtain a claim form, complete it fully, and return it to counsel for the plaintiff class, Bruce A. Fredrickson, Esq., Webster & Fredrickson, 1819 H Street, N.W., Suite 300, Washington, D.C. 20006 (202/659-8515), postmarked no later than July 15, 1989.

You may obtain a claim form in person and/or in writing from several sources: counsel for the plaintiff class, whose address is listed above; in person from USIA, Front Lobby, 301-4th Street, S.W., Washington, D.C. (8:15am -5:00pm), Office of Personnel Management (OPM), Federal Job Information Center (First Floor, Room 1425), 1900 E Street, N.W., Washington, D.C. (8:30am-2:30p.m.), or from area OPM offices throughout the country; in writing, VOA-Hartman, P.O. Box 400, Washington, D.C. 20044. You should carefully consider all questions on the claim form, sign it, and return it to counsel for the plaintiffs. Do not, under any circumstances, return the claim form to the Judge, the Court or the Clerk of the Court. The Judge, the Court and the Clerk of the Court will not accept the claim forms and will not forward claim forms to plaintiffs' counsel.

### PROCESSING OF CLAIMS

The process for handling claims has not been finally decided. Thus far, the Court has ordered that responding class members demonstrate their potential entitlement to relief at an individual hearing to be scheduled at a later date. However, the Court has reserved the right to reconsider this procedure in the event the number of claims filed makes this approach unmanageable.

Should individual hearings be used, you will be fully informed as to the date and time of your hearing. Moreover, you will be entitled to legal representation by counsel for the plaintiff class or his designee at no cost to you. Legal counsel will discuss your claim with you prior to your hearing, help you prepare your case and represent you at your hearing. You may, of course, retain your own attorney to represent you, if you so desire.

At the individual hearing, you will be asked to demonstrate your potential entitlement to relief by showing that you applied for one or more of the covered positions during the period October 8, 1974 and November 16, 1984 and that you were rejected, or that you were discouraged from applying. Evidence may be required in the form of testimony, documents, or both. Once you have demonstrated these facts, USIA is required to prove, by clear and convincing evidence, that you were not hired (for each position for which you applied) for a legitimate, non-discriminatory reason, such as failure to possess requisite qualifications. Should USIA make such a showing, you would then be entitled to demonstrate that the Agency's reason is merely a cover for sex discrimination or unworthy of belief.

Following the hearing, the Presiding Official will decide whether you are entitled to relief and, if so, what relief is appropriate. You may be entitled to wages and benefits you would have earned if you had been hired (back pay) from the date of your rejection until the date relief is approved. Under the law, back pay is offset by earnings you may have had during the period. In addition, you may be found to be entitled to front pay (that is, compensation into the future until an appropriate position is afforded you). Similarly, you may be found to be entitled to priority consideration for employment with the Agency. If hired, you may further be entitled to retroactive seniority with the associated benefits and the value of any promotions you would likely have had if you had not suffered discrimination.

### REQUIRED STEPS TO FILE YOUR CLAIM

To participate in the remedial phase, you must fully complete the claim form and return it, POSTMARKED NO LATER THAN July 15, 1989, to counsel for the plaintiff class. Your failure to do so will result in your losing all rights you may have in this lawsuit. If you have questions about your rights or procedures available to you, you may contact counsel for the plaintiff class:

Bruce A. Fredrickson  
Webster & Fredrickson  
1819 H Street, N.W., Suite 300  
Washington, D.C. 20006  
(202/659-8515)

October 4, 1988

Date

/s/ Judge Charles R. Richey

United States District Court  
Judge Charles R. Richey







William E. Willis, KC3YT, also collected all of his confirmations and received USA-CA All Counties #600, USA-CA 3000 #630, USA-CA 2500 #705, USA-CA 2000 #770, and USA-CA 1500 #859, Mixed, dated 12-16-88. (Ed. note: Clarence and William, who are brothers, each gave the other his very last county in a single QSO which was arranged for the purpose. I believe that's a first.)

Joseph C. Cannon, Sr., KA5RNH, added the final touches to his good record and claimed USA-CA All Counties #601, All SSB, dated 12-23-88.

John G. Ditmer, W0IZV, garnered his last confirmations and received USA-CA All Counties #602, and USA-CA 3000 #631, Mixed, dated 12-24-88.

Coleman Szekely, W8DZL, decided to do it all in one giant leap and claimed USA-CA All Counties #603, USA-CA 3000 #632, USA-CA 2500 #706, USA-CA 2000 #773, USA-CA 1500 #860, USA-CA 1000 #1047, and USA-CA 500 #2299, Mixed, dated 12-29-88.

George W. Hammon, WA6CQW, filed his good application and was awarded USA-CA All Counties #604, USA-CA 3000 #633, USA-CA 2500 #707, USA-CA 2000 #774, USA-CA 1500 #861, and USA-CA 1000 #1048, Mixed, dated 12-30-88.

Robert P. Hastings, KY1I, updated his good record and received USA-CA 2500 #704, Mixed, dated 12-15-88.

James T. Clary, WB9IHH, took another big step toward his goal by claiming USA-CA 2000 #771, Mixed, dated 12-20-88.

Bruno Stangnowski, DL7CS, put down his key long enough to file his claim for USA-CA 2000 #772, All A-1 Mode, dated 12-22-88.

H. Vaughn Lowther, NY0R, joined the ranks of award holders by claiming USA-CA 1000 #1045, and USA-CA 500 #2295, Mixed, dated 12-5-88.

Pedro J. Allina, HK1JJH, submitted his record book and application and received USA-CA 1000 #1046, and USA-CA 500 #2296, All SSB, dated 12-10-88.

USA-CA 500 certificates went to:

H. Vaughn Lowther, NY0R, USA-CA 500 #2295, Mixed, 12-5-88.

Pedro J. Allina, HK1JJH, USA-CA 500 #2296, All SSB, 12-10-88.

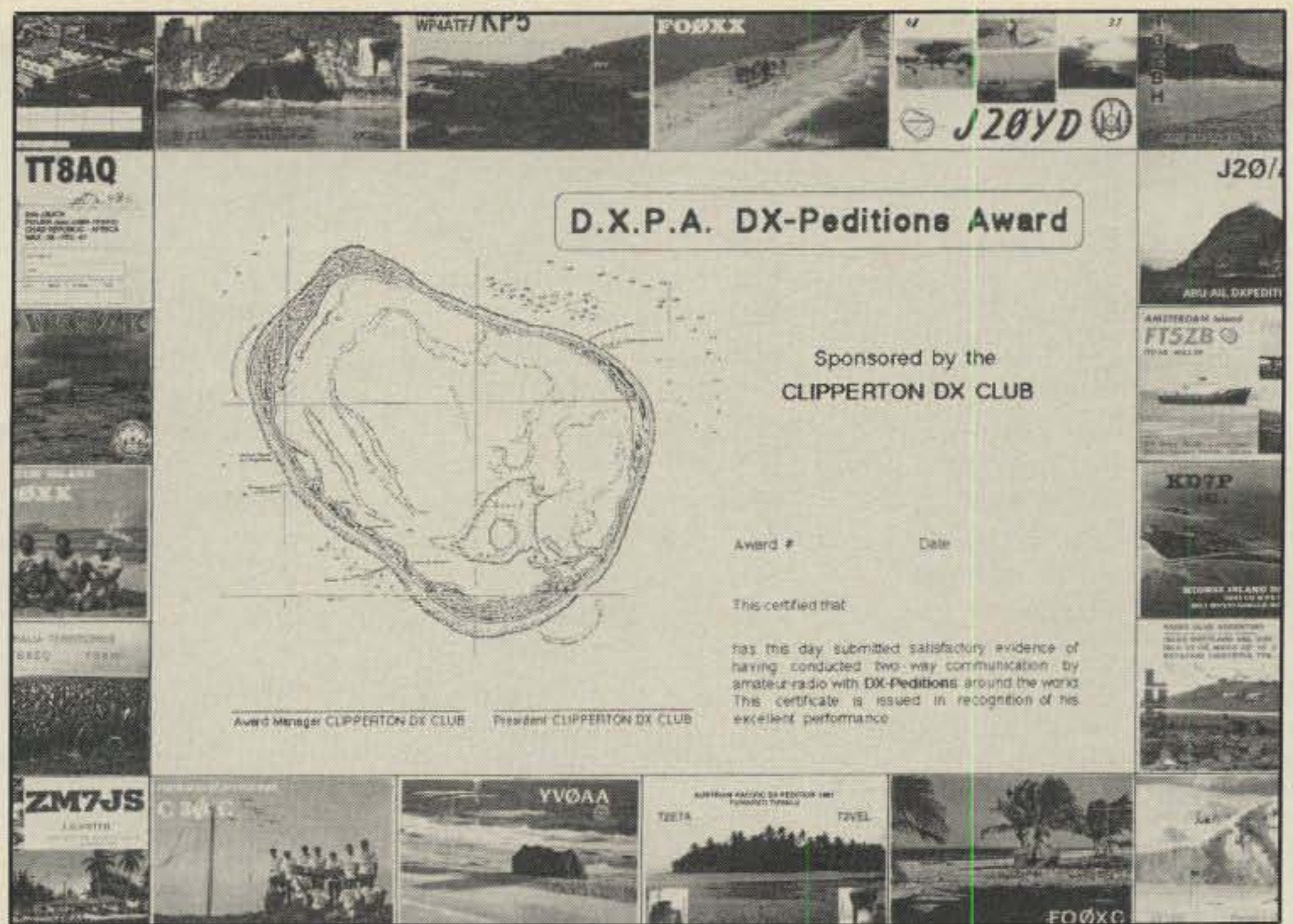
Wallace R. Spencer, WD4BLU, USA-CA 500 #2297, Mixed, 12-14-88.

Richard L. Cochran, WB8ULZ, USA-CA 500 #2298, Mixed, 12-21-88.

Coleman Szekely, W8DZL, USA-CA 500 #2299, Mixed, 12-29-88.

## Awards Available

**DXPA DXpeditions Award.** The DXPA DXpeditions Award is sponsored by the Clipperton DX Club. All inquiries and applications should be addressed to the Award Manager, Clipperton DX Club, Alain Tuduri, FD1LMJ, 132 rue des Champarons, 92700 Colombes, France. The aim of the DXPA is to encourage and reward ama-



DXPA Award offered by the Clipperton DX Club.

teur radio traffic with DXpeditions. The award is available to any licensed OM or SWL, beginning January 1, 1985.

**Rule 1—Definition of an expedition.** An expedition, with respect to this award, is a temporary activity, by an individual or a group, duly authorized to operate in a place where amateur activity is either nil or limited.

The list of countries to which an expedition is automatically taken into account for the DXPA may be modified at any time by the Board of Directors of the Clipperton DX Club based on changes in the DXCC list (addition or deletion of countries) or on the activity of residents becoming too important. Expeditions to these countries only will be valid, including those temporarily using a resident's callsign.

The Clipperton DX Club reserves the right to reject an operation if it is not authorized, or if it does not meet standards of courtesy and the ham spirit.

**Rule 2—Qualification rules.** The DXPA is available in three categories—OM QRO, QRP (less than 5 watts) and SWL—for QSOs made or heard in five possible modes (mixed, phone, CW, RTTY, satellite) with 50 expeditions (35 for QRP stations). The number of expeditions credited is limited to two for the same DXCC country. All of the five continents must be represented.

The Honor DXPA will be awarded to stations that are able to accomplish QSOs with 35 expeditions (20 for QRP) per band on at least 5 of the allowed bands.

The QSOs will need to be confirmed by QSL cards, which will have to be submitted along with the application, using the official recap form. The cost of the DXPA



Bruno Stangnowski, DJ7CS, displays his many fine awards. Bruno recently qualified for USA-CA 2000 #772, All A-1, number 2 to West Germany.

is 70 FRF, \$10 US, or 15 IRCs, this including the return of the QSL cards. The Honor DXPA will be offered free of charge by the Clipperton DX Club.

The application form is available from the Award Manager, Clipperton DX Club for an SASE or 1 IRC. Please send requests to him at the address given above. The list of countries automatically creditable for DXPA is given in Table I.

**WZ/SWL (Worked Zones SWL) Award.** The Worked Zones SWL Award is available to all shortwave listeners and licensed radio amateurs worldwide. It is based on amateur radio contacts with stations located in the various CQ Zones. There are three classes as follows.

**SWL Class III:** Applicant must have QSL cards from amateur stations in at least 20 zones.

**SWL Class II:** Applicant must have QSL



A2	Botswana	KG4	Guantanamo Bay	VK/LH	Lord Howe	ZK3	Tokelau
A3	Tonga	KH1	Baker	VK9/W	Willis	ZL/A	Auckland
A4	Oman	KH3	Johnston	VK9/C	Chriatmas	ZL/C	Chatham
A5	Bhutan	KH4	Midway	VK9/C	Cocos Keeling	ZL/K	Kermadec
A6	U. A. E.	KH5	Palmyra	VK9/M	Mellish Reef	ZS2	Prince Edward
A7	Qatar	KH5/K	Kingman Reef	VK9/N	Norfolk	1S	Spratly
A9	Bahrain	KH7	Kure	VH0/H	Heard Isl.	3A	Monaco
AP	Pakistan	KH8	American Samoa	VK0/M	Macquarie	3B6	Agalega
BV	Taiwan	KH9	Wake	VP1/V3	Belize	3B8	Mauricius
C2	Nauru	KH0	Mariana	VP2A/V2	Antigua, Barbuda	3B9	Rodrigues
C9	Mozambique	KP1	Navasa	VP2E	Anguilla	3C	Eq. Guinea
CE0A	Easter Isl.	KP/D	Desecheo	VP2M	Montserrat	3C0	Annobon
CE0X	San Felix	KX	Marshall	VP2V	Brit. Virgin	3D2	Fiji
CE0Z	Juan Fernandez	OH0	Aaland	VP5	Turks & Caicos	3D6	Swaziland
D2, D3	Angola	OJ0	Market Reef	VP8	Falklands	3V	Tunisia
D4	Cape Verde	OY	Faroe Isl.	VP8	South Georgia	3X	Rep. of Guinea
D6	Comoros	P2	Papua New Guinea	VP8	South Orkney	3Y	Peter 1er
EP	Iran	P4	Aruba	VP8	South Sandwich	3Y	Bouvet
ET	Ethiopia	PJ	San Maarten	VP8	South Shetland	4S	Sri Lanka
FG/FS	St. Martin	PY0/F	Fernando	VP9	Bermuda	4N	Yemen
FH	Mayotte	PY0/S	St. Peter & St. Paul	VQ9	Chagos	5A	Lybia
F00	Clipperton	PY0/T	Trinidad	VR6	Pitcairn Isl.	5B4	Cyprus
FP	St. Pierre & Miquelon	S2	Bangladesh	VS5/V8	Brunei	5H	Tanzania
FR/G	Glorioso Isl.	S7	Seychelles	VU7	Lacadive	5R	Malagasy Rep.
FR/E	Europa	S9	Sao Tome	VU7	Andaman & Nicobar	5U	Niger
FR/T	Tromelin	S0	Rep. Arab Saharaoui	XF4	Revilla Gigedo	5V	Togo
FT8W	Crozet	ST	Sudan	XT	Upper Volta	5W	West Samoa
FT8X	Kerguelen	ST0	Southern Sudan	XU	Kampuchea	5X	Uganda
FT8Z	Amsterdam & St. Paul	SU	Egypt	XV	Vietnam	5Z	Kenya
FW	Wallis & Futuna	SV5	Dodecanese	XW	Laos	6Y	Jamaica
H4	Solomon Isl.	SV9	Crete	XX	Macao	70	Dem. Rep. Yemen
HC8	Galapagos	SV/A	Mount Athos	XZ	Burma	7P	Lesotho
HK0	San Andres	T2	Tovalu	YA	Afghanistan	7Q	Malawi
HS	Thailand	T30	West Kiribati	YI	Iraq	8P6	Barbados
HV	Vatican	T31	Cent. Kiribati	YJ	New Hebrides	8Q7	Maldiv
HZ	Saudi Arabia	T32	East Kiribati	YK	Syria	8R	Guyana
J2/A	Abu Ail	T5	Somalia	YV0	Aves Isl.	9G	Ghana
J3	Grenada	T19	Cocos	ZA	Albania	9J	Zambia
J5	Guinea Bissau	TJ	Cameroon	ZB	Gibraltar	9K	Kuwait
J6	St. Lucia	TL	Central African R.	ZC4	Cyprus (Brit. Force)	9L	Sierra Leone
J7	Dominica	TN	Congo	ZD7	St. Helena	9M2	West Malaysia
J8	St. Vincent	TT	Tchad	ZD8	Ascension	9M6	East Malaysia
JD	Minami	TY	Benim	ZD9	Tristan Da Cunha	9N	Nepal
JD	Ogasawara	TZ	Mali	Z2	Zimbabwe	9Q	Zaire
JT	Mongolia	UA1	Franz Josef Land	ZF	Cayman	9U	Burundi
JW	Svalbard	V4	St. Kitts	ZK1	South Cook	9V	Singapore
JX	Jan Mayen	VE1	Sable Isl.	ZK1	North Cook	9X	Rwanda
KC6	Micronesia	VE1	St. Paul Isl.	ZK2	Niue	9Y	Trinidad & Tobago
KC6	Belau						

Table 1-List of countries automatically creditable for the DXPA DXpeditions Award.

cards from amateur stations in at least 30 zones.

**SWL Class I:** Applicant must have QSL cards from amateur stations in all the 40 zones.

**Licensed Amateur Class III:** Applicant must have QSL cards from SWL stations in at least 20 zones.

**Licensed Amateur Class II:** Applicant must have QSL cards from SWL stations in at least 30 zones.

**Licensed Amateur Class I:** Applicant must have QSL cards from SWL stations in all the 40 zones.

Contacts on any dates, any mode, and any legal bands are acceptable. Single-

mode or single-band endorsement may be requested.

Do not send QSL cards. A list of confirmed QSLs should be certified by one RC officer or two OMs. Application should be sent with 30 Fr, 10 IRCs, or \$5.00 US to WZ/SWL Award Manager, F11ADB, Pierre Fournier, 3 Bis rue Pasteur, 78000 Versailles, France.

**TV-FV Award.** This new award is based on the special French prefixes TV and FV. The special prefixes TV and FV (0 to 9) can be used for special French events such as commemorations, contests, expeditions to the French islands, etc. The TV-FV Award is available to all licensed ama-

teur radio operators and SWL stations.

There are two bases on which to obtain the award:

A. Confirmations of 15 different TV/FV stations with at least one TV6, TV7, FV6, FV7, and FV8 prefix. One station with a TO or TW or TX or HW prefix may be used to replace only one TV or FV prefix.

B. Confirmations of 25 different TV/FV stations, without restriction. For example, 20 different TV6 stations, 3 different TV7 stations, and 2 different FV6 stations.

Handprinted endorsements will be added to the award for phone, RTTY, CW, single band, or any other special operating achievement endorsement. Separ-



# DIPLOME TV-FV

LE PRESENT DIPLOME  
N° EST DECERNE T COMMEMORATION F

AM  
INDICAIT:

SSB  
 CW  
 MDXTE  
 RTTY

6  
FV7  
8

MHz V DEPARTION V

Date Le Manager

TV-FV Award. Pierre Fournier, F11ADB, is the award manager.



50th Anniversary

Y.L.R.L.  
Young Ladies' Radio League, Inc.

This is to Certify that

has submitted evidence of two-way radio communication with fifty (50) members of the Young Ladies' Radio League between January 1, 1989 and December 31, 1989 to commemorate the League's 50th Anniversary.

Mary Lou Brown, NM7N  
Janice L. Brown, N01F

YLRL 50th Anniversary Award recognizing contacts with 50 YLRL members during 1989. (See details in CQ, November 1988, page 81.)

ate TV-FV awards can be requested for each proven operating achievement.

Applications must be accompanied by 30 FF, 10 IRCs, or \$5.00 US.

QSL cards are the medium of validation of contacts, but verified lists are preferred with the applications. The list must show all pertinent information including other station callsign, date, time, mode, and band. The list must be validated by an amateur radio club or two other licensed amateurs. The validation simply indicates that another amateur has seen that the claimed contacts are properly recorded in your station log and/or verified by your receiving QSL cards.

The TV-FV Manager is Pierre Fournier, F11ADB, 3 Bis rue Pasteur, F-78000 Versailles, France.

## Notes

Ted Melinosky tells me that the 1989 edition of the *K1BV DX Awards Directory* is now available. (Readers may recall that the 1988 edition was described in this column in January.) For further details, get in touch with Ted at 525 Foster Street (Suite 10), South Windsor, Connecticut 06074-2936, USA.

73, Dorothy, WB9RCY

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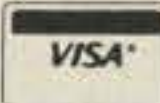


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## HITACHI SCOPES AT DISCOUNT PRICES

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## ELENCO PRODUCTS AT DISCOUNT PRICES

<p><b>20MHz Dual Trace Oscilloscope</b> <b>\$359</b> <b>MO-1251</b></p> <ul style="list-style-type: none"> <li>• 6" CRT</li> <li>• Built in component tester</li> <li>• TV Sync</li> <li>• X-Y Operation</li> </ul>	<p><b>FREE DMM</b> with purchase of <b>MO-1251/1252 Scope</b></p> <p><b>SCOPE PROBES</b> P-1 65MHz, 1x, 10x <b>\$19.95</b> P-2 100MHz, 1x, 10x <b>\$23.95</b> Fits all scopes with BNC connector</p>	<p><b>35MHz Dual Trace Good to 50MHz</b> <b>\$495</b> <b>MO-1252</b></p> <ul style="list-style-type: none"> <li>• High luminance 6" CRT</li> <li>• 1mV Sensitivity</li> <li>• 6KV Acceleration Voltage</li> <li>• 10ns Rise Time</li> <li>• X-Y Operation • Z Axis</li> <li>• Delayed Triggering Sweep</li> </ul>
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Top quality scopes at a very reasonable price. Contains all desired features. Two 1x, 10x probes, diagrams and manual. Two year guarantee.

<p><b>Autoranging DMM</b> <b>M-5000</b> <b>\$45</b></p> <ul style="list-style-type: none"> <li>• 9 Functions</li> <li>• Memory and Data hold</li> <li>• 1/2% basic acc</li> <li>• 3 1/2 digit LCD</li> </ul>	<p><b>True RMS 4 1/2 Digit Multimeter</b> <b>M-7000</b> <b>\$135</b></p> <ul style="list-style-type: none"> <li>• 0.5% DC Accuracy</li> <li>• .1% Resistance with Freq. Counter and deluxe case</li> </ul>	<p><b>Multimeter with Capacitance and Transistor Tester</b> <b>CM-1500</b> <b>\$55</b></p> <ul style="list-style-type: none"> <li>• Reads Volts, Ohms, Current, Capacitors, Transistors and Diodes with case</li> </ul>	<p><b>Digital Capacitance Meter</b> <b>CM-1550</b> <b>\$58.95</b></p> <ul style="list-style-type: none"> <li>• 9 Ranges</li> <li>• .1pf-20,000ufd</li> <li>• .5% basic accy</li> <li>• Zero control with case</li> </ul>	<p><b>Digital LCR Meter</b> <b>LC-1801</b> <b>\$125</b></p> <ul style="list-style-type: none"> <li>• Measures Coils 1uH-200H</li> <li>• Caps .1pf-200uf</li> <li>• Res .01-20M</li> </ul>
<p><b>AC Clamp-On Current Adapter</b> <b>ST-265</b> <b>\$22</b></p> <ul style="list-style-type: none"> <li>• 0-1000A AC</li> <li>• Works with most DMM</li> </ul>	<p><b>Bench DMMs</b> <b>M-3500</b> <b>M-4500</b> <b>\$125</b> <b>\$175</b></p> <ul style="list-style-type: none"> <li>• 3 1/2 digit 1% accy</li> <li>• 4 1/2 digit .05% accy</li> </ul>	<p><b>SOLDERING STATION TEMPERATURE CONTROLLED</b> <b>SL-30</b> <b>\$135</b></p> <ul style="list-style-type: none"> <li>• Digital display</li> <li>• Temp range: 300F-900F</li> <li>• Grounded tip</li> <li>• Overheat prot</li> </ul>	<p><b>Solderless Breadboards</b> 9430 1,100 pins <b>\$15</b> 9434 2,170 pins <b>\$25</b> 9436 2,860 pins <b>\$35</b> All have color coded posts. 9436 SHOWN</p>	<p><b>Low Cost Multimeter</b> <b>M-1600</b> <b>\$25</b></p> <ul style="list-style-type: none"> <li>• 3 1/2 digit LCD</li> <li>• 1% DC Accy</li> <li>• 10A Scale</li> <li>• Auto zero</li> <li>• /polarity</li> </ul>

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<p><b>Digital Triple Power Supply</b> <b>XP-765</b> <b>\$249</b></p> <ul style="list-style-type: none"> <li>• 0-20V at 1A</li> <li>• 0-20V at 1A</li> <li>• 5V at 5A</li> </ul> <p>Fully Regulated, Short circuit protected with 2 Limit Cont., 3 Separate supplies. <b>XP-660 with Analog Meters \$175</b></p>	<p><b>Quad Power Supply</b> <b>XP-580</b> <b>\$59.95</b></p> <ul style="list-style-type: none"> <li>• 2-20V at 2A</li> <li>• 12V at 1A</li> <li>• 5V at 3A</li> <li>• -5V at 5A</li> </ul> <p>Fully regulated and short circuit protected <b>XP-575 without meters \$39.95</b></p>	<p><b>10MHz XT 100% IBM® Compatible</b> <b>5 Year Warranty</b> <b>\$595</b> <b>MODEL PC-1000</b></p> <ul style="list-style-type: none"> <li>• 510MHz Motherboard</li> <li>• 8 Expansion Slots</li> <li>• Math Compressor Slots</li> <li>• 360K Floppy Drive</li> <li>• AT Style Keyboard</li> <li>• 150W Power Supply</li> <li>• 256K RAM</li> <li>• Expandable to 640K</li> <li>• Monochrome Monitor</li> <li>• Monographic Video Card</li> <li>• Parallel Printer Port</li> </ul> <p><b>FREE spreadsheet and word processor</b> 3.3MS DOS and GW Basic add \$75</p>	

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# Propagation

a monthly feature by  
GEORGE JACOBS, W3ASK

## THE SCIENCE OF PREDICTING RADIO CONDITIONS

**“U**p, up, up she goes and where she will stop no one knows.” This ancient ditty ably describes the course of the present sunspot cycle, which took a leap forward at the last reading.

The Royal Observatory of Belgium reports a monthly mean sunspot number of 179.4 for December 1988. Daily values ranged from a low of 105 on December 2nd to a high of 253 on the 22nd. This results in a smoothed sunspot number of 94 centered on June 1988. This is an increase of 10 numbers from the previous month's level. From its beginning during September 1986 with a count of 12, Cycle 22 has risen 82 numbers in 21 months. It continues to increase at a rate higher than any previous cycle. In fact, the smoothed sunspot number recorded for June is *higher* than the peaks of at least nine previously recorded cycles, and the peak of this cycle is still as much as a year away!

As expected, there was a corresponding increase in the 10.7 cm solar flux level, with the Algonquin Radio Observatory at Ottawa, Ontario reporting a level of 200.4.

A smoothed sunspot number of 155 is forecast for April 1989. This would be the highest level of solar activity to be observed since June 1980.

### April Conditions

The combination of high solar activity and spring propagation conditions should bring about considerable changes in DX propagation patterns on the amateur high-frequency bands, almost all of them for the better.

The 10 meter band, almost completely dead during periods of low solar activity, is expected to remain very much alive during the spring months. Expect considerable DX on this band from an hour or two after sunrise to just after sunset. While normal seasonal changes should result in fewer east-west openings, conditions may actually improve for openings towards southern and tropical areas. To most areas of the world peak signals should occur during the afternoon hours.

There's a big surprise in store for 15 meters. During periods of low solar activity this band generally begins its doldrums about now. But not this year. During April

11307 Clara Street, Silver Spring, MD 20902

### LAST MINUTE FORECAST

Day-to-Day Conditions Expected for April 1989

Propagation Index .....	Expected Signal Quality			
	(4)	(3)	(2)	(1)
Above Normal: 5, 10, 22, 26	A	A	B	C
High Normal: 4, 9, 14, 16, 19-21, 25, 27	A	B	C	C-D
Low Normal: 3, 8, 13, 15, 17-18, 23-24, 30	A-B	B-C	C-D	D-E
Below Normal: 1-2, 6, 11-12, 28-29	B-C	C-D	D-E	E
Disturbed: 7	C-E	D-E	E	E

Where expected signal quality is: A—Excellent opening, exceptionally strong, steady signals greater than S9.  
B—Good opening, moderately strong signals varying between S6 and S9+, with little fading or noise.  
C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.  
D—Poor opening, with weak signals varying between S0 and S3, and with considerable fading and noise.  
E—No opening expected.  
3dB per S-Unit.

### HOW TO USE THIS FORECAST

1. Find propagation index associated with particular band opening from Propagation Charts appearing on the following pages.
2. With the propagation index, use the above table to find the expected signal quality associated with the band opening for any day of the month. For example, an opening shown in the charts with a propagation index of 3 will be fair-to-poor (C-D) on April 1 and 2, good-to-fair (B-C) on the 3rd; good (B) on the 4th, excellent (A) on the 5th, etc.

expect 15 meters to be loaded with DX openings from just after sunrise to well beyond sunset. Signals should be strongest to most areas of the world during the afternoon hours, but don't be surprised to find openings as late as *midnight* to southern and tropical areas.

Twenty meters is expected to take on added importance as a DX band during April. Besides the usual worldwide DX openings during the daylight hours, 20 meters should be the optimum DX band during most of the hours of darkness. Around-the-clock DX openings can be expected during April. Strongest signals, and openings in almost all directions, should take place for an hour or two after sunrise and again during the late afternoon and through the evening hours to about midnight. Many nighttime openings will be associated with exceptionally strong signal levels.

Even though there are fewer hours of darkness during April, an improvement is expected for 40 meter DX conditions. Signals should be stronger and more stable than during the winter months, and open-

ings should occur in more directions. Expect good DX conditions throughout the hours of darkness, with signals peaking from an easterly direction about an hour or two before midnight, and from most other directions about an hour or so before the local sunrise on the USA end of the path.

Fairly good DX openings to many areas of the world should also be possible on 80 meters during the hours of darkness. Propagation patterns should be similar to 40 meter openings, but 80 meter signals will usually be weaker and noisier.

With increased hours of daylight and seasonally increasing static levels, propagation conditions on 160 meters will not be as good during April as they were this past winter. There is a chance, however, for some fairly good DX openings on this band during the hours of darkness and the sunrise period.

The seasonably favorable equinoctial propagation conditions discussed in last month's column should continue through April for openings between the northern and southern hemispheres. Be sure to check during the sunrise and sunset twilight periods for *both* long- and short-path openings between both hemispheres, particularly on 20 meters.

### VHF Ionospheric Openings

April should be a good month for VHF ionospheric openings.

Some F2-layer DX openings should be possible on 6 meters from the USA to southern and tropical areas. These are most likely to occur during the afternoon hours when conditions are High Normal or better. The best times for such openings are those shown for 10 meters in the DX charts with a propagation index of (4).

Trans-equatorial (TE) propagation between the USA and South America should reach a seasonal peak during April. These openings are most likely to occur on 6 meters, with some also possible on 2 meters, between 8 and 11 PM local time. TE openings favor the southern tier states, but some openings may also be possible to more northerly locations.

Lyrids, a major meteor shower, should take place between April 22nd and 23rd, with a peak expected on the 22nd. During the shower's peak, at least 15 large-size meteors should enter the earth's atmosphere hourly, permitting fairly good meteor-scatter communications on the VHF bands.

A seasonal increase in sporadic-E ionization, with associated short-skip open-



**HOW TO USE THE DX PROPAGATION CHARTS**

1. Use Chart appropriate to your transmitter location. The Eastern USA Chart can be used in the 1, 2, 3, 4, 8 KP4, KG4 and KV4 areas in the USA and adjacent call areas in Canada; the Central USA Chart in the 5, 9 and 0 areas; the Western USA Chart in the 6 and 7 areas, and with somewhat less accuracy in the KH6 and KL7 areas.

2. The predicted times of openings are found under the appropriate meter band column (10 through 80 Meters) for a particular DX region, as shown in the left hand column of the Charts. An \* indicates the best time to listen for 160 meter openings.

3. The propagation index is the number that appears in ( ) after the time of each predicted opening. The index indicates the number of days during the month on which the opening is expected to take place as follows:

- (4) Opening should occur on more than 22 days
- (3) Opening should occur between 14 and 22 days
- (2) Opening should occur between 7 and 13 days
- (1) Opening should occur on less than 7 days

Refer to the "Last Minute Forecast" at the beginning of this column for the actual dates on which an opening with a specific propagation index is likely to occur, and the signal quality that can be expected.

4. Times shown in the Charts are in the 24-hour system, where 00 is midnight; 12 is noon; 01 is 1 A.M.; 13 is 1 P.M. etc. Appropriate daylight time is used, not GMT. To convert to GMT, add to the times shown in the appropriate chart 7 hours in PDT Zone, 6 hours in MDT Zone, 5 hours in CDT Zone, and 4 hours in EDT Zone. For example, 14 hours in Washington, D.C. is 18 GMT. When it is 20 hours in Los Angeles, it is 03 GMT, etc.

5. The charts are based upon a transmitted power of 250 watts c.w., or 1 kw, p.e.p. on sideband, into a dipole antenna quarter-wavelength above ground on 40 and 20 meters, and a wavelength above ground 15 and 10 meters. For each 10 db gain above these reference levels, the propagation index will increase by one level for each 10dB loss, it will lower by one level.

6. Propagation data contained in the Charts has been prepared from basic data published by the Institute for Telecommunication Sciences of the U.S. Dept. of Commerce, Boulder, Colorado, 80302.

Southern Africa	10-11 (1) 11-13 (2) 13-14 (1)	08-10 (1) 10-12 (2) 12-14 (3) 14-15 (2) 15-16 (1) 01-03 (1)	12-14 (1) 14-16 (2) 16-17 (3) 17-18 (2) 18-19 (1) 00-01 (1) 01-02 (2) 02-04 (3) 04-05 (2) 05-06 (1) 06-08 (2) 08-09 (1)	21-22 (1) 22-00 (2) 00-02 (1) 22-01 (1)*
Central & South Asia	19-21 (1)	09-12 (1) 15-18 (1) 18-20 (2) 20-22 (1)	16-18 (1) 18-19 (2) 19-21 (3) 21-22 (2) 22-00 (1) 05-06 (1) 06-08 (2) 08-09 (1)	05-07 (1) 19-21 (1)
Southeast Asia	18-21 (1)	08-11 (1) 18-20 (1) 20-22 (2) 22-23 (1)	06-07 (1) 07-09 (2) 09-10 (1) 16-17 (1) 17-18 (2) 18-19 (3) 19-20 (2) 20-21 (1)	05-07 (1)
Far East	18-20 (1)	08-10 (1) 15-16 (1) 16-18 (2) 18-20 (3) 20-21 (2) 21-22 (1)	06-07 (1) 07-09 (2) 09-10 (1) 16-17 (1) 17-18 (2) 18-20 (3) 20-21 (2) 21-22 (1)	06-08 (1)
South Pacific & New Zealand	15-17 (1) 17-18 (2) 18-20 (3) 20-21 (2) 21-22 (1)	09-11 (1) 13-15 (1) 15-17 (2) 17-18 (3) 18-21 (4) 21-23 (3) 23-00 (2) 00-01 (1)	19-21 (1) 21-22 (2) 22-23 (3) 23-04 (4) 04-08 (3) 08-09 (2) 09-10 (1)	00-02 (1) 02-05 (2) 05-06 (3) 06-07 (2) 07-08 (1) 02-07 (1)*
Australasia	17-19 (1) 19-21 (2) 21-22 (1)	09-10 (1) 10-11 (2) 11-12 (1) 17-19 (1) 19-20 (2) 20-22 (3) 22-23 (2) 23-00 (1)	23-00 (1) 00-03 (2) 03-05 (3) 05-08 (4) 08-09 (3) 09-10 (2) 10-11 (1) 17-19 (1)	03-05 (1) 05-07 (2) 07-08 (1) 05-07 (1)*

Eastern & Central Africa	14-17 (3) 17-18 (2) 18-19 (1)	15-17 (3) 17-19 (4) 19-21 (3) 21-22 (2) 22-23 (1)	17-19 (3) 19-23 (4) 23-00 (3) 00-01 (2) 01-03 (1)	23-00 (1) 21-23 (1)*
Southern Africa	10-12 (1)	09-11 (1) 11-13 (2) 13-14 (3) 14-15 (2) 15-16 (1) 00-02 (1)	14-16 (1) 16-19 (2) 19-22 (1) 22-00 (2) 00-02 (3) 02-04 (2) 04-05 (1) 05-07 (2) 07-08 (1)	20-22 (1) 22-00 (2) 00-01 (1) 22-00 (1)*
Central & South Asia	18-21 (1)	16-18 (1) 18-21 (2) 21-22 (1) 09-11 (1)	05-07 (1) 07-09 (2) 09-11 (1) 17-18 (1) 18-19 (2) 19-21 (3) 21-23 (2) 23-00 (1)	06-08 (1) 19-21 (1)
Southeast Asia	18-20 (1)	09-11 (1) 11-13 (2) 13-15 (1) 17-19 (1) 19-21 (2) 21-23 (1)	23-03 (1) 03-07 (2) 07-09 (3) 09-11 (2) 11-12 (1)	05-07 (1)
Far East	18-21 (1)	08-11 (1) 15-16 (1) 16-17 (2) 17-21 (3) 21-23 (2) 23-00 (1)	23-02 (1) 02-04 (2) 04-06 (3) 06-08 (4) 08-09 (3) 09-11 (2) 11-13 (1)	03-05 (1) 05-06 (2) 06-07 (1) 05-06 (1)*
South Pacific & New Zealand	11-14 (1) 14-16 (2) 16-20 (3) 20-21 (2) 21-22 (1)	08-09 (1) 09-11 (2) 11-14 (1) 14-17 (2) 17-18 (3) 18-21 (4) 21-23 (3) 23-01 (2) 01-03 (1)	16-19 (1) 19-20 (2) 20-21 (3) 21-03 (4) 03-07 (3) 07-09 (4) 09-10 (3) 10-11 (2) 11-12 (1)	00-02 (1) 02-04 (2) 04-06 (3) 06-07 (2) 07-08 (1) 02-04 (1)* 04-05 (2)* 05-06 (1)*
Australasia	15-17 (1) 17-19 (2) 19-21 (3) 21-22 (1)	08-09 (1) 09-10 (2) 10-11 (1) 16-18 (1) 18-20 (2) 20-22 (3) 22-23 (2) 23-00 (1)	05-07 (3) 07-08 (2) 08-10 (3) 10-12 (2) 12-16 (1) 16-18 (2) 18-21 (1) 21-23 (2) 23-01 (3) 01-05 (4)	02-04 (1) 04-06 (2) 06-07 (1) 04-06 (1)*
Caribbean, Central America & Northern Countries of South America	09-12 (1) 12-14 (2) 14-15 (3) 15-17 (4) 17-18 (3) 18-19 (2) 19-20 (1)	07-09 (1) 09-11 (2) 11-14 (3) 14-19 (4) 19-21 (3) 21-22 (2) 22-23 (1)	03-06 (2) 06-08 (3) 08-10 (4) 10-12 (3) 12-15 (2) 15-17 (3) 17-23 (4) 23-03 (3)	19-21 (1) 21-22 (2) 22-03 (3) 03-05 (2) 05-07 (1) 21-23 (1)* 23-04 (2)* 04-06 (1)*
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina & Uruguay	08-10 (1) 10-14 (2) 14-17 (3) 17-19 (4) 19-20 (2) 20-21 (1)	07-08 (1) 08-11 (2) 11-14 (1) 14-15 (2) 15-16 (3) 16-20 (4) 20-22 (3) 22-23 (2) 23-00 (1)	05-16 (1) 06-09 (2) 09-15 (1) 15-17 (2) 17-19 (3) 19-00 (4) 00-02 (3) 02-05 (2)	20-21 (1) 21-04 (2) 04-06 (1) 23-03 (1)* 03-04 (2)* 04-06 (1)*
McMurdo Sound, Antarctica	17-19 (1)	16-18 (1) 18-20 (2) 20-21 (1)	16-18 (1) 18-20 (2) 20-02 (3) 02-07 (2) 07-08 (1)	20-01 (1) 01-05 (2) 05-06 (1)

**April 15 to June 15, 1989  
Time Zone: EDT (24-hour Time)  
Eastern USA To:**

	10 Meters	15 Meters	20 Meters	40/80 Meters
Western & Central Europe & North Africa	10-13 (1) 13-16 (2) 16-18 (1)	07-09 (1) 09-11 (2) 11-15 (3) 15-17 (4) 17-18 (3) 18-19 (2) 19-21 (1)	09-13 (1) 13-15 (2) 15-17 (3) 17-21 (4) 21-01 (3) 01-04 (2) 04-07 (3) 07-09 (2)	19-20 (1) 20-21 (2) 21-00 (3) 00-02 (2) 02-03 (1) 20-21 (1)* 21-22 (2)* 22-00 (3)* 00-01 (2)* 01-02 (1)*
Northern Europe & European USSR	11-16 (1)	08-10 (1) 10-13 (2) 13-16 (3) 16-18 (2) 18-19 (1) 22-00 (1)	06-09 (2) 09-13 (1) 13-16 (2) 16-20 (3) 20-22 (4) 22-02 (3) 02-03 (2) 03-06 (1)	19-20 (1) 20-23 (2) 23-01 (1) 20-23 (1)*
Eastern Mediterranean & Middle East	14-17 (1)	10-14 (1) 14-16 (2) 16-18 (3) 18-19 (2) 19-20 (1)	12-16 (1) 16-18 (2) 18-21 (3) 21-00 (4) 00-02 (3) 02-03 (2) 03-06 (1) 06-08 (2) 08-09 (1)	20-22 (1) 22-00 (2) 00-01 (1) 21-23 (1)*
Western Africa	10-11 (1) 11-12 (2) 12-14 (3) 14-16 (4) 16-18 (3) 18-20 (2) 20-21 (1)	07-08 (2) 08-10 (3) 10-13 (2) 13-16 (3) 16-20 (4) 20-23 (3) 23-04 (2) 04-07 (1)	07-14 (1) 14-16 (2) 16-18 (3) 18-02 (4) 02-05 (3) 05-07 (2)	20-22 (1) 22-02 (2) 02-03 (1) 22-02 (1)*
Eastern & Central Africa	16-17 (1) 17-19 (2) 19-21 (1)	08-12 (1) 12-14 (2) 14-16 (3) 16-19 (4) 1-20 (3) 20-21 (2) 21-22 (1)	14-16 (1) 16-18 (2) 18-19 (3) 19-22 (4) 22-01 (3) 01-04 (2) 04-06 (1) 06-08 (2) 08-09 (1)	21-01 (1) 22-00 (1)*

**Time Zones: CDT & MDT (24-hour Time)  
Central USA To:**

	10 Meters	15 Meters	20 Meters	40/80 Meters
Western & Southern Europe & North Africa	11-17 (1)	07-12 (1) 12-14 (2) 14-18 (3) 18-19 (2) 19-20 (1)	05-09 (2) 09-14 (1) 14-17 (2) 17-19 (3) 19-21 (4) 21-23 (3) 23-01 (2) 01-05 (1)	19-21 (1) 21-23 (2) 23-01 (1) 00-01 (1)*
Northern Europe & European USSR	NIL	10-12 (1) 12-16 (2) 16-18 (1) 21-23 (1)	01-07 (1) 07-09 (2) 09-14 (1) 14-19 (2) 19-23 (3) 23-01 (2)	19-21 (1) 21-23 (2) 23-01 (1)
Eastern Mediterranean & Middle East	15-18 (1)	10-13 (1) 13-17 (2) 17-18 (1) 20-22 (1)	13-15 (1) 15-17 (2) 17-20 (3) 20-22 (4) 22-00 (3) 00-01 (2) 01-03 (1)	20-00 (1)
Western Africa	10-12 (1) 12-14 (2)	09-13 (1) 13-15 (2)	12-15 (1) 15-17 (2)	20-21 (1) 21-23 (2)

**April 15 to June 15, 1989  
Western USA To:**

	10 Meters	15 Meters	20 Meters	40/80 Meters
Western & Southern Europe & North Africa	09-12 (1) 16-17 (1)	08-11 (1) 11-14 (2) 14-16 (3) 16-17 (2) 17-18 (1)	01-07 (1) 07-10 (2) 10-13 (1) 13-17 (2) 17-19 (3) 19-21 (2) 21-23 (3) 23-01 (2)	20-21 (1) 21-23 (2) 23-00 (1) 21-23 (1)*
Central & Northern Europe & European USSR	14-16 (1)	11-14 (1) 14-16 (2) 16-17 (1) 22-00 (1)	02-07 (1) 07-09 (2) 09-13 (1) 13-16 (2) 16-18 (3) 18-22 (2) 22-00 (3) 00-02 (2)	19-23 (1) 21-22 (1)*





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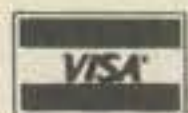
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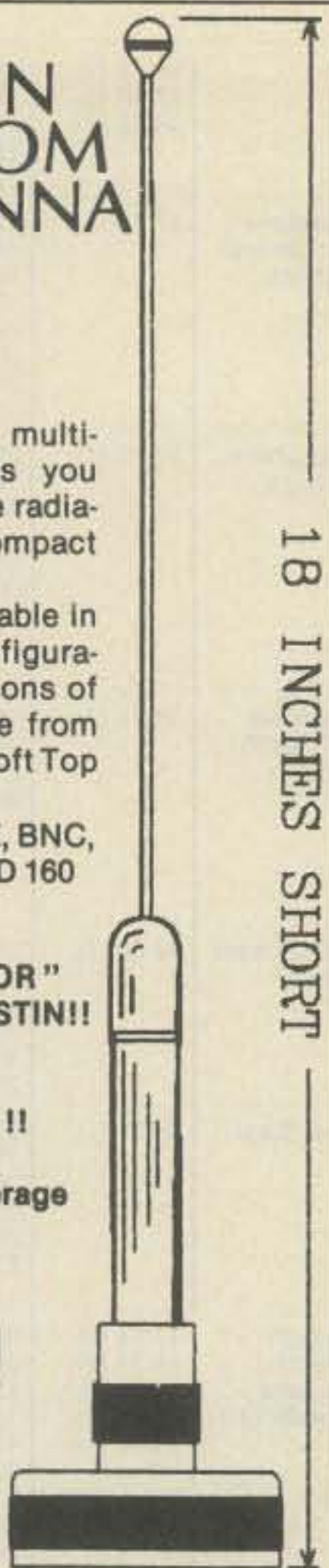
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ings on both 6 and 2 meters, usually begins during April and continues through the spring and summer months. While, as its name implies, sporadic-E ionization can occur at just about any time, there is a tendency for it to peak between 8 AM and noon and again between 5 and 9 PM local time. Occasional short-skip openings on 6 meters, ranging between 750 and 1300 miles, are possible during April.

Unusual ionospheric openings on the VHF bands can also occur during April when widespread auroral activity is present. The best times to check for such openings are during expected periods of radio storminess, since during April many storms will be associated with auroral activity. See the Last Minute Forecast at the beginning of this column for those days during April that are expected to be Below Normal or Disturbed.

The DX Propagation Charts in this month's column contain DX propagation predictions for each amateur band between 10 and 160 meters for the period April 15 to June 15, 1989. Beginning this month and continuing through the summer and early fall, the times shown in the charts will be local daylight time (EDT, CDT, MDT, and PDT). For detailed predictions of short-skip openings between distances of 250 and 2300 miles, see the Short-Skip Propagation Charts which appeared in last month's column.

73, George, W3ASK

Eastern Mediterranean & Middle East	NIL	09-11 (1) 11-15 (2) 15-19 (1) 19-21 (2) 21-22 (1)	07-08 (1) 08-10 (2) 10-13 (1) 13-15 (2) 15-17 (3) 17-20 (2) 20-22 (3) 22-23 (2) 23-03 (1)	20-23 (1)
Western Africa	10-14 (1) 14-17 (2) 17-19 (1)	08-12 (1) 12-15 (2) 15-17 (3) 17-19 (4) 19-20 (3) 20-21 (2) 21-22 (1)	02-06 (1) 06-08 (2) 08-15 (1) 15-17 (2) 17-18 (3) 18-22 (4) 22-00 (3) 00-02 (2)	20-23 (1)
Eastern & Central Africa	15-18 (1)	10-12 (1) 12-14 (2) 14-17 (3) 17-19 (2) 19-21 (1) 21-23 (2) 23-00 (1)	11-15 (1) 15-17 (2) 17-19 (3) 19-21 (2) 21-23 (3) 23-00 (2) 00-02 (1)	19-22 (1)
Southern Africa	09-11 (1)	07-09 (1) 09-11 (2) 11-12 (1) 12-14 (2) 14-15 (1)	07-09 (1) 13-15 (1) 15-18 (2) 18-22 (1) 22-23 (2) 23-01 (3) 01-02 (2) 02-03 (1)	19-20 (1) 20-22 (2) 22-23 (1) 20-22 (1)*
Central & South Asia	17-19 (1)	08-09 (1) 09-11 (2) 11-16 (1) 16-17 (2) 17-19 (3) 19-21 (2) 21-23 (1)	05-06 (1) 06-07 (2) 07-09 (3) 09-10 (2) 10-11 (1) 16-18 (1) 18-21 (2) 21-23 (1)	05-08 (1)
Southeast Asia	12-14 (1)	08-09 (1) 09-12 (2) 12-19 (1) 19-22 (2) 22-23 (1)	04-07 (2) 07-10 (3) 10-11 (2) 11-13 (1) 22-00 (1) 00-02 (2) 02-04 (3)	04-07 (1) 05-06 (1)*
Far East	12-13 (1) 13-15 (2) 15-19 (1)	08-10 (1) 10-17 (2) 17-21 (3) 21-23 (2) 23-00 (1)	04-07 (2) 07-08 (3) 08-09 (4) 09-10 (3) 10-11 (2) 11-12 (1) 12-14 (2) 14-21 (1) 21-23 (2) 23-00 (3) 00-03 (4) 03-04 (3)	01-03 (1) 03-07 (2) 07-08 (1) 03-06 (1)*
South Pacific & New Zealand	11-13 (1) 13-15 (2) 15-17 (3) 17-19 (4) 19-20 (3) 20-22 (2) 22-23 (1)	09-10 (1) 10-12 (3) 12-16 (2) 16-17 (3) 17-21 (4) 21-00 (3) 00-02 (2) 02-03 (1)	06-08 (2) 08-11 (3) 11-12 (2) 12-17 (1) 17-19 (2) 19-21 (3) 21-02 (4) 02-06 (3)	22-00 (1) 00-02 (2) 02-07 (3) 07-08 (2) 08-09 (1) 01-02 (1)* 02-06 (2)* 06-07 (1)*
Australasia	13-14 (1) 14-15 (2) 15-19 (3) 19-20 (2) 20-21 (1)	13-16 (1) 16-18 (2) 18-19 (3) 19-22 (4) 22-00 (3) 00-02 (2) 02-03 (1)	05-07 (2) 07-09 (3) 09-10 (2) 10-12 (1) 18-20 (1) 20-21 (2) 21-23 (3) 23-03 (4) 03-05 (3)	01-02 (1) 02-04 (2) 04-06 (3) 06-07 (2) 07-08 (1) 02-03 (1)* 03-05 (2)* 05-06 (1)*
Caribbean, Central America & Northern Countries of South America	10-12 (1) 12-14 (2) 14-15 (3) 15-18 (4) 18-20 (2) 20-21 (1)	07-08 (1) 08-09 (2) 09-13 (3) 13-19 (4) 19-20 (3) 20-22 (2) 22-23 (1)	00-03 (3) 03-05 (2) 05-06 (3) 06-09 (4) 09-11 (3) 11-15 (2) 15-17 (3) 17-00 (4)	19-20 (1) 20-21 (2) 21-00 (3) 00-02 (4) 02-03 (3) 03-04 (2) 04-06 (1) 21-00 (1)* 00-03 (2)* 03-05 (1)*
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina & Uruguay	08-11 (1) 11-14 (2) 14-15 (3) 15-17 (4) 17-18 (3) 18-19 (2) 19-20 (1)	07-08 (1) 08-11 (2) 11-14 (1) 14-15 (2) 15-16 (3) 16-19 (4) 19-21 (3) 21-22 (2) 22-23 (1)	00-02 (3) 02-03 (2) 03-05 (1) 05-09 (2) 09-15 (1) 15-17 (2) 17-18 (3) 18-00 (4)	19-22 (1) 22-03 (2) 03-04 (1) 20-03 (1)*
McMurdo Sound, Antarctica	15-19 (1)	15-16 (1) 16-18 (2)  18-20 (3) 20-22 (2) 22-00 (1)	16-18 (1) 18-19 (2)  19-21 (3) 21-01 (4) 01-03 (3) 03-05 (2) 05-07 (1)	21-22 (1) 22-00 (2)  00-05 (1) 05-07 (2) 07-08 (1)

\*Predicted times for 80 meter openings. Openings on 160 meters are also likely to occur during those times when 80 meter openings are shown with a propagation index of (2), or higher. Six meter openings are likely to occur at times when 10 meter openings are shown with a propagation index of (4) and conditions are HIGH NORMAL or better.

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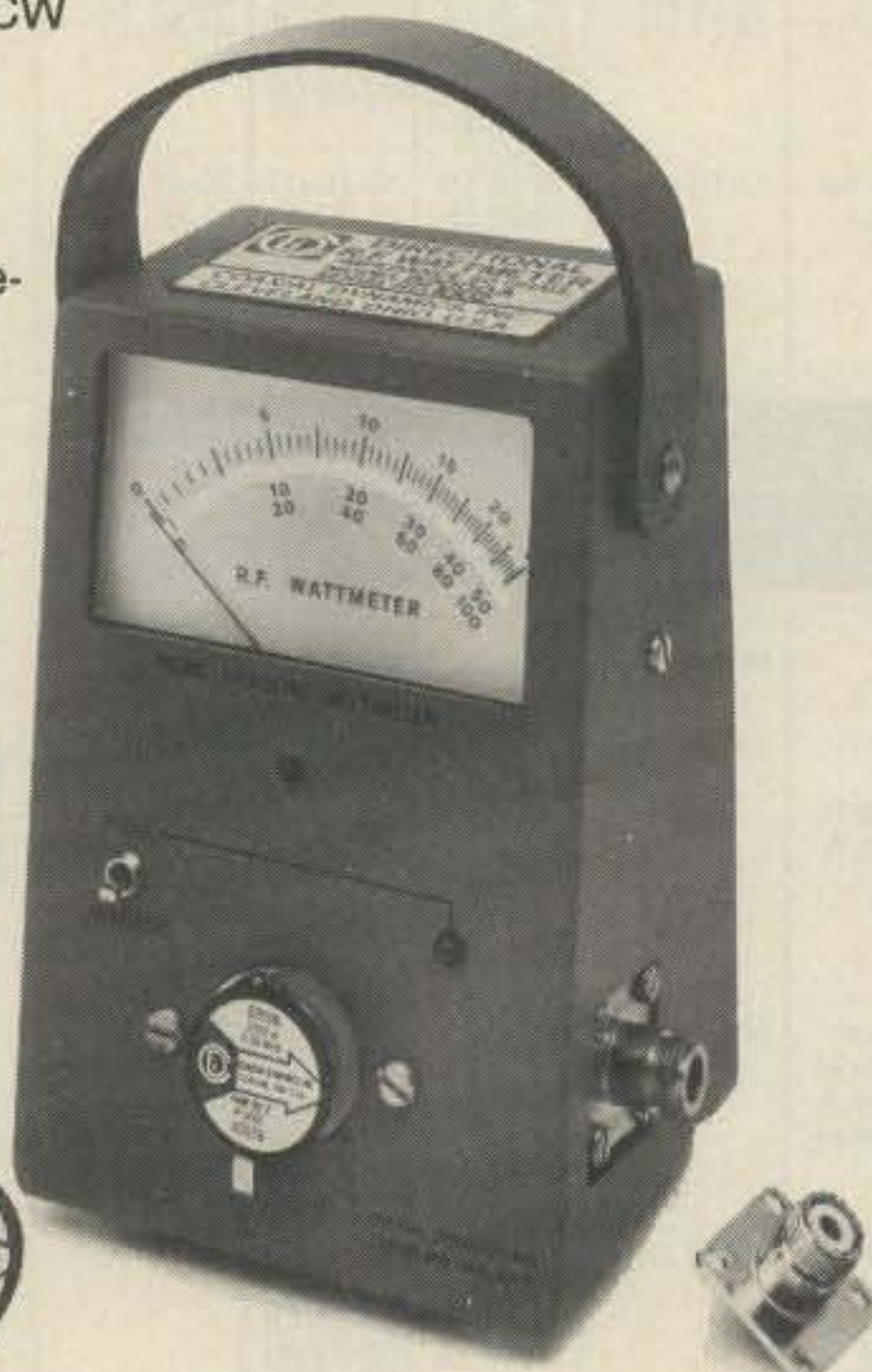
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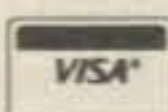
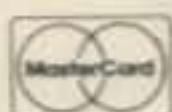
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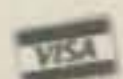
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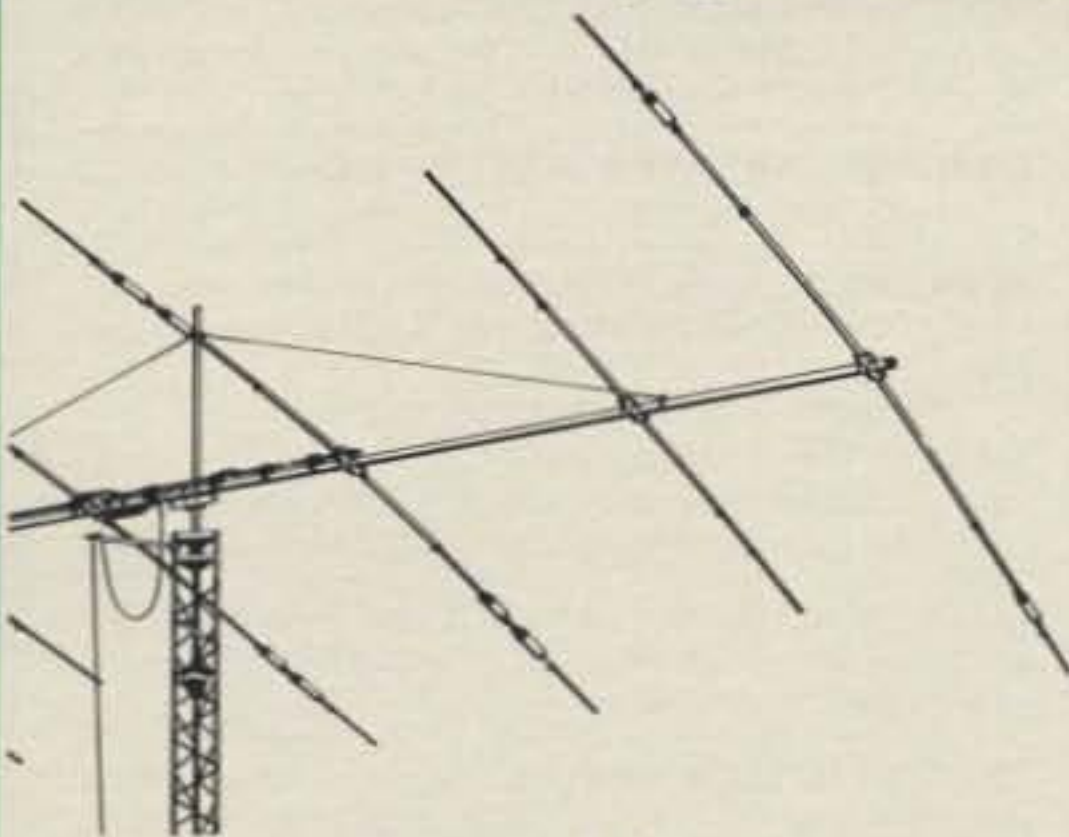


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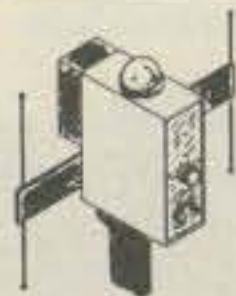
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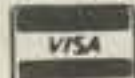
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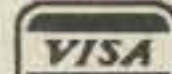


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OLDTIMERS! N6AW is writing a book about W6AM. If you have a story to tell about Don Wallace, take a few minutes to jot it down and send it to me. Jan D. Perkins, N6AW, 524 Bonita Canyon Way, Brea, CA 92621.

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WANTED: Four 572B tubes for Clipperton L. Must be reasonable. FOR SALE: IC22S, converted to 88 channels. Best offer. N2CLS, 10009 White Cascade Drive, Charlotte, NC 28213 (704-549-9339).

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HAM RADIO & Electronic Publication list for an SASE. Dick Randall, K6ARE, 1263 Lakehurst Rd., Livermore, CA 94550.

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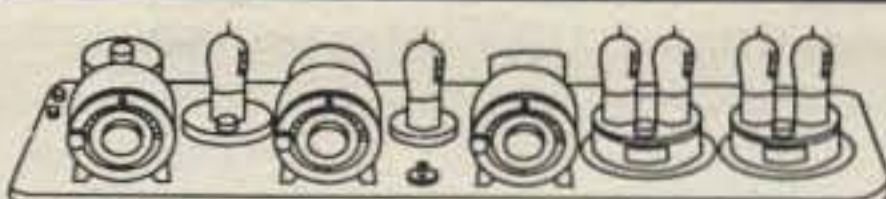
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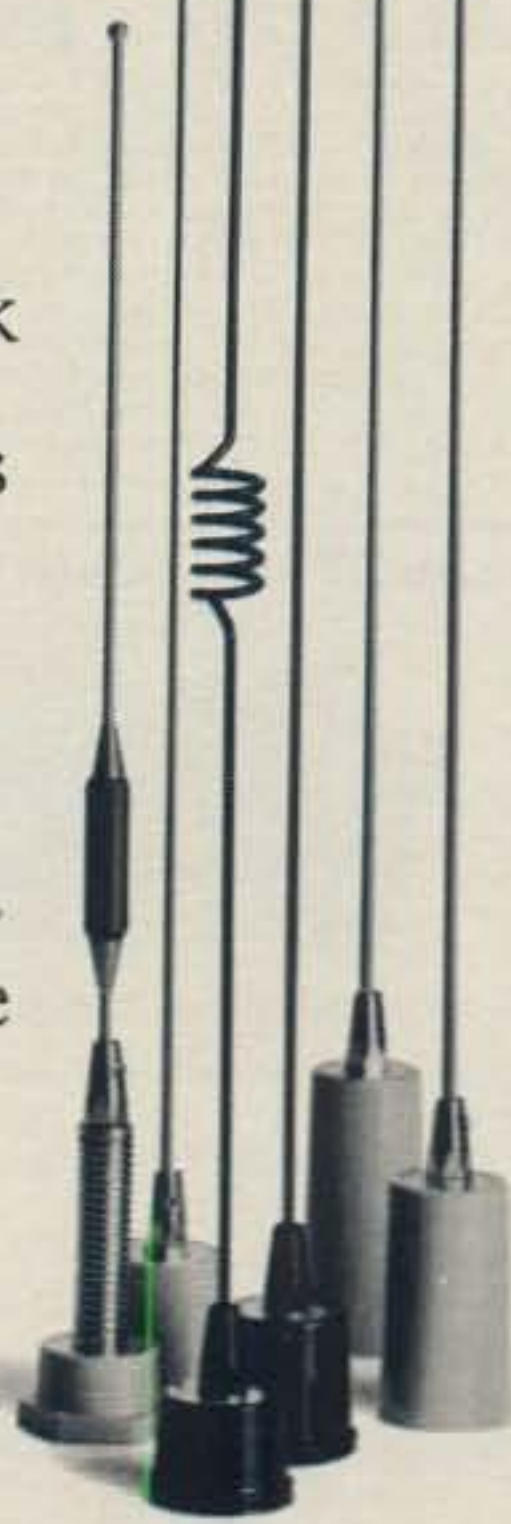


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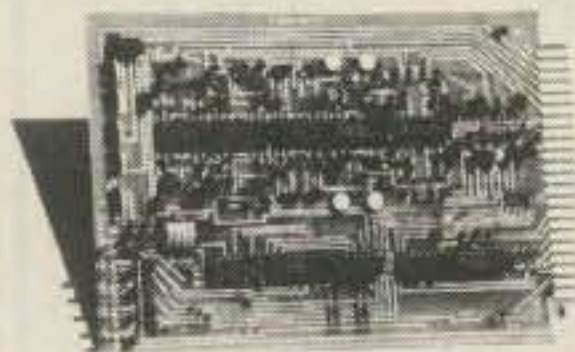
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UG-21B/9913	N Male for RG-8 with 9913 Pin	5.75
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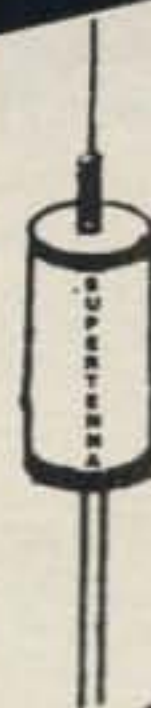
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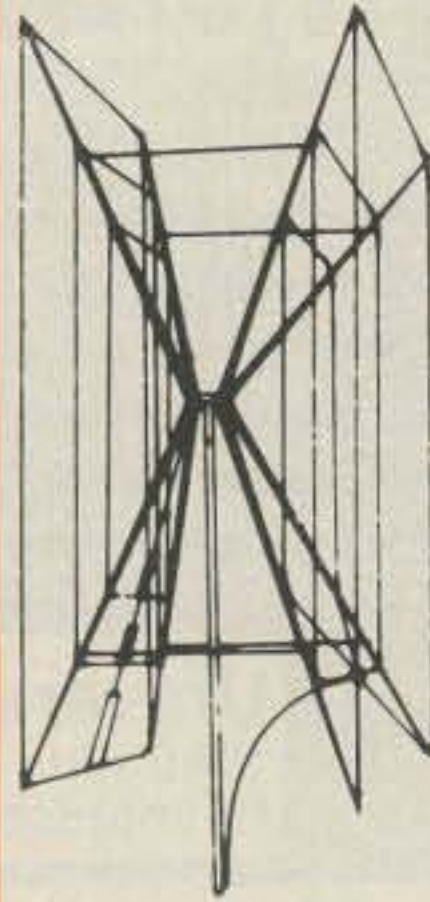
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# Our Readers Say

(from page 8)

## FM and OSCAR

Editor, CQ:

I read "Try 10 Meter FM!" (Oct. 88, page 54) with great interest, as 10 is my favorite band and FM is just plain fun. But I was very disturbed to find K1WVX suggest that the satellite subband be narrowed or shifted down in frequency.

The satellite subbands are dictated by international agreement and must be exclusively amateur worldwide. Second, it should be obvious that you cannot change frequencies on a satellite once it is launched.

Users of RS-10/11 are already experiencing serious interference from FM operation between 29.35 and 29.45 MHz. When 10 is open two stations operating FM in the satellite subband can overpower the full 50 kHz of weak signals from the satellite. Even if the FM operator is in the footprint of the satellite, he will never hear the downlink signals with an FM receiver.

Mode A, 145 MHz up and 29 MHz down, allows amateurs with limited resources to participate in the OSCAR program. This is what is most often used in schools to allow young people to experience the excitement of the space program and ham radio first hand.

FM and OSCAR are both fun parts of our hobby, but they *must* be separated.

John Young, W8KNE  
Jacksonville, FL

## Communication Should Begin At Home

Editor, CQ:

Thanks for including Robert Miller's article "Organizing The Toy Box" in your January 1989 issue. He states his case well, and it is indeed a point well taken. Unfortunately, I felt that while it covered the technical aspects of equipment-list compilation, etc., I can only re-

gret that it did not take up a certain related aspect with more force.

Last June my parents retired to the Sunbelt. In one of their initial visits with one of their new neighbors (a woman recently widowed), they asked if she was feeling okay or not. She appeared worn out. She responded that she was indeed a bit tired. She had spent the entire previous day hauling out her husband's entire ham radio shack ("junk," as she initially put it) from the basement and deposited it in the garage. Upon questioning her, my father, a retired AT&T engineer, ascertained that it was indeed a good (complete and modern) set. He did not have the heart to tell her what she had done. The garbage truck had taken it that morning. (Yes, read it and weep, folks!) I've been a ham

less than a year, and this is the second such incident I've run across.

The point is this. The Silent Key could have written lists of whatever until he was blue in the face, but apparently he never saw fit to make sure that his mate *understood* some of the more significant aspects of his hobby (monetary compensation upon his death being only one). Okay, not everyone's interested in being a ham, but any novice knows that communication is one of the primary goals inherent in the hobby. Simply stated, let's make sure that once the lists are made, people know what to do with them. Communication *should* begin at home.

Craig Larson, KB0CAD  
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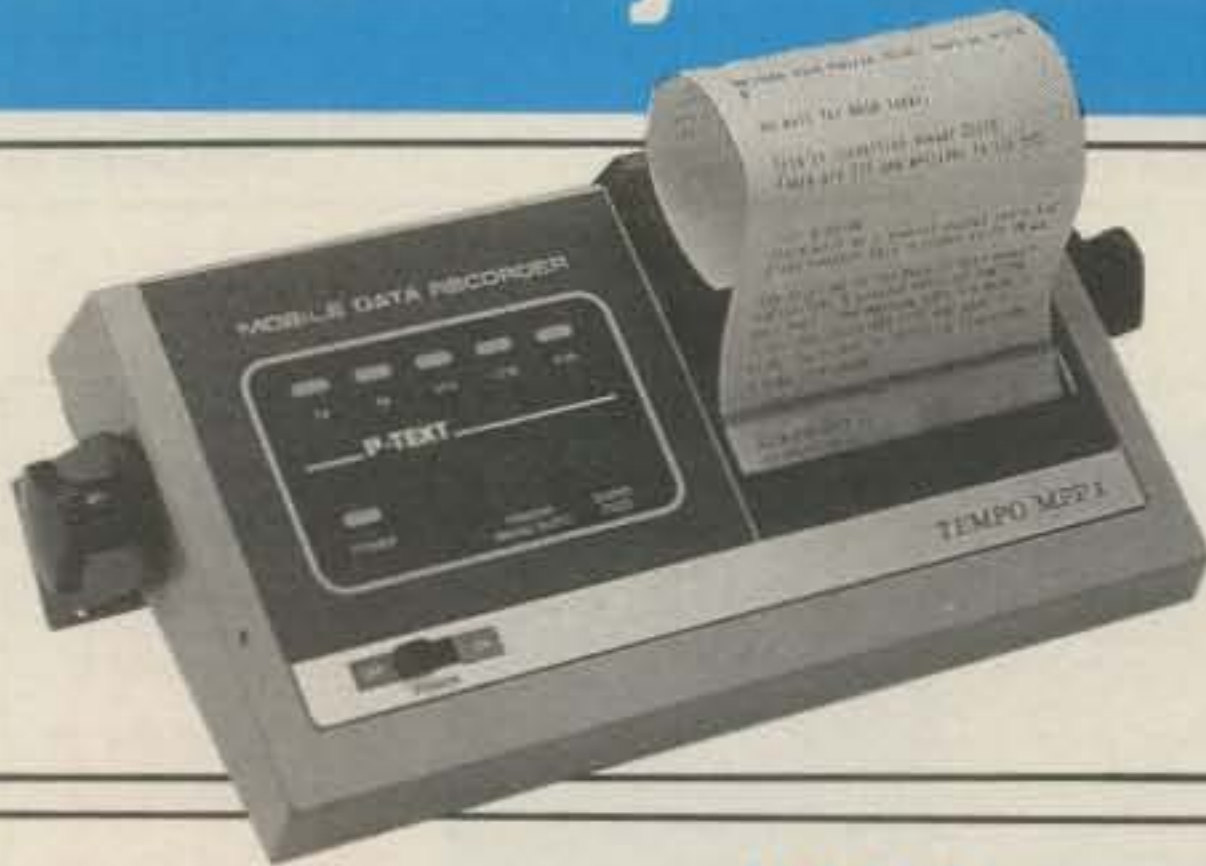
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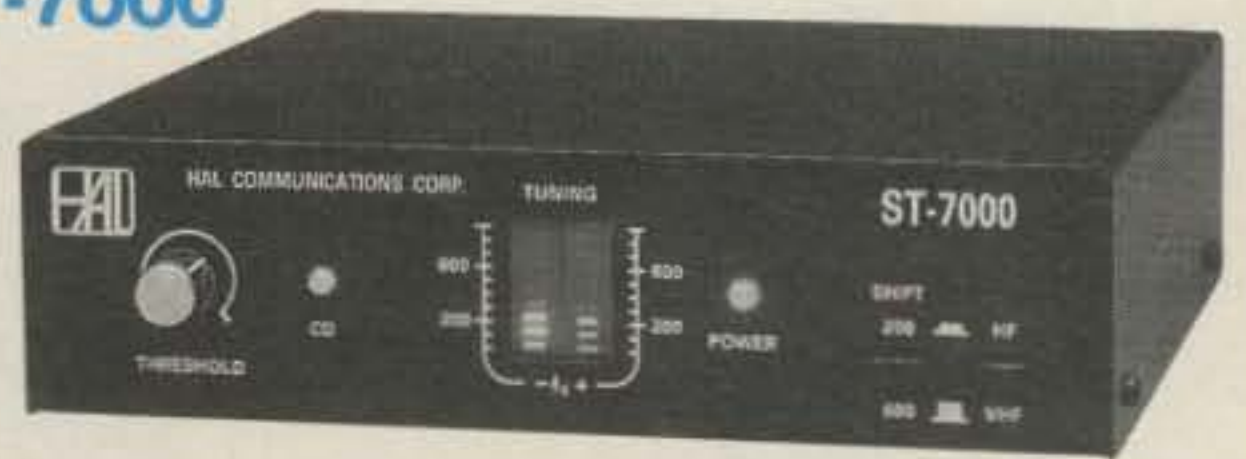


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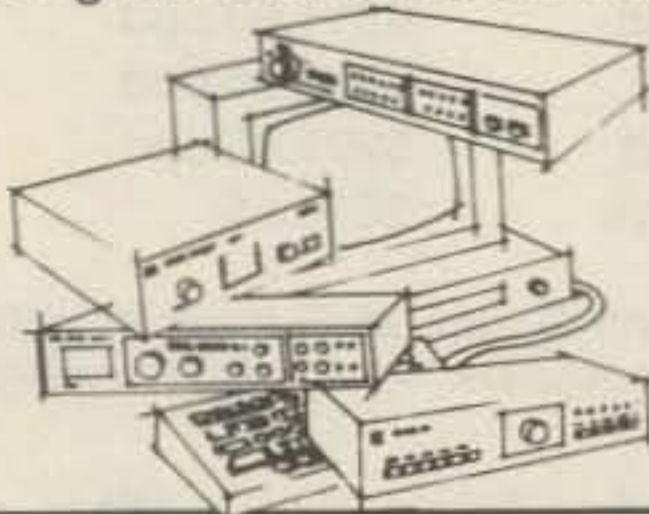
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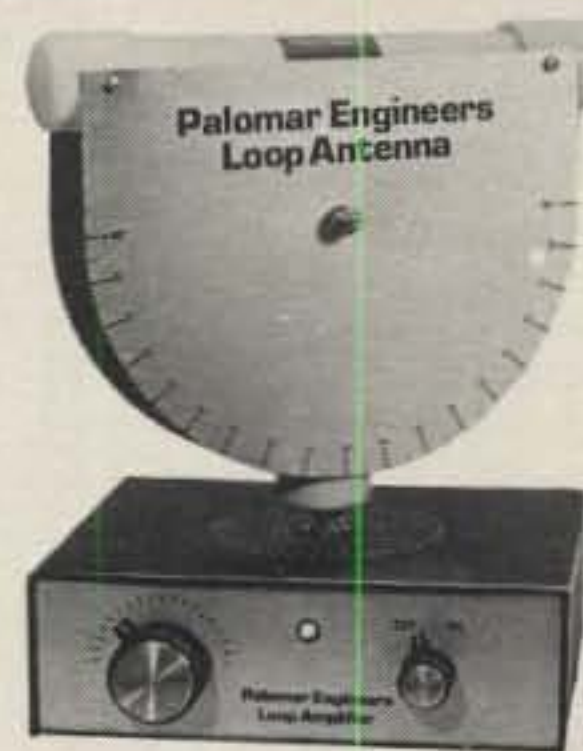


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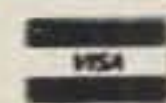
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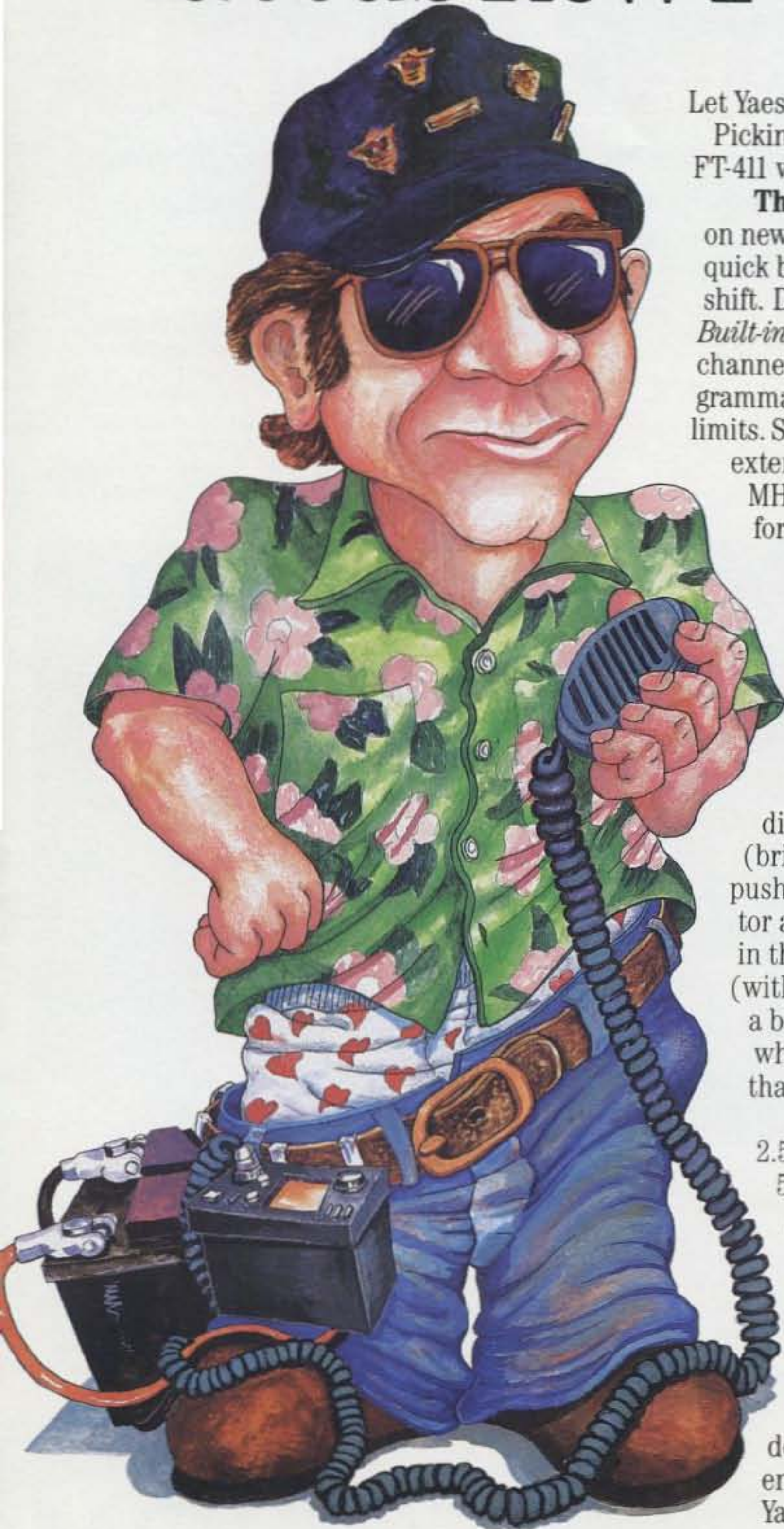
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